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## SOME SOCIO-ECONOMIC PROBLEMS IN NEUROPSYCHIATRY*


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The hosts of neuropsychiatric patients and the relatively small number of physicians who minister exclusively to them challenge attention. The fifth presentation of hospital data by the American Medical Association[1] gives the astounding information that 42.5 per cent of all hospital beds in the United States, exclusive of bassinets, and 51 per cent of all beds in use are for neuropsychiatric patients, the great majority being, of course, psychiatric. In general hospitals there are 283,301 beds, of which only 178,979, or 66 per cent, are in daily use. For all purposes, such as general hospital, tuberculosis, children's diseases and neuropsychiatry, there are 802,065 beds, of which 625,611 are in daily use. Of this number 341,480, 1 to 322 of population, with 322,991, or 94 per cent, in daily use are for neuropsychiatric purposes, a shade over one half. These figures do not include beds for neurologic patients in almshouses which, to the number of several thousand, should rightly be added. The number of persons who suffer from incipient diseases of the brain and nervous system not necessitating hospitalization at the moment cannot be estimated but, in all probability, at all times far exceeds the number of those who are institutionalized. The mortality, in the registration area, from diseases of the brain and nervous system,[2] including the apoplexies, is 121,656, or 10 per cent plus that from all causes.

Notwithstanding the vastness of our fields of labor, only 3,211 physicians[3] specialize in neuropsychiatry, of whom 315 are in private or semiprivate institutions and 925 give full time and 665 part time, a total of 1,925 in private practice. The remainder are in public service.

For comparison, the mortality from diseases of the eye and ear is but 3,351, or 0.27 per cent of the total mortality; that is, there are more than thirty-six times as many deaths from diseases of the brain and nervous system as there are from diseases of the eye and ear. Yet otolaryngo-ophthalmology has 6,939 devotees, of whom 4,737 give full time and 2,202 give part time, all in private practice, 2.16 times as many as are in all branches of neuropsychiatry and 3.6 times as many as are in private, or private institutional, neuropsychiatric practice.

An inquiry into the disparity may not be amiss. Of those who practice neuropsychiatry, 1,286 are resident in state, federal and city psychiatric hospitals, their patients wards of, and their compensation paid by, the commonwealth. Here has been the entering wedge for state control of the practice of medicine, which opened a rift that was enormously widened by the development of industrial accident commissions and, more recently, by various activities of the Veterans' Bureau.

The beneficent effects of state, as opposed to old time county, care of insane patients has made most people take for granted the thought that state care is the best care and has tended to perpetuate popular belief that there is a closer relationship between psychopathy and criminality than there is between psychopathy and disease. As a result, private institutional care of psychiatric patients often has been regarded as an invasion of the right of the state to control, if not to monopolize, their management. Many patients in the incipience of psychosis, and indeed in any stage of psychoneurosis, fear the psychiatrist, partly because they imagine he will confirm anticipated mental breakdown, largely because of the popular concept of insanity with belief in the monstrous iniquities that are thought to be commonly visited on the insane. Thus, at a time when most could be done for them, when a few words of kindly, understanding advice might be sufficient to stabilize tottering mentalities, they search for physical causes for their disorders, seeking removal of some diseased organ, or, even more commonly, visiting healers, mechanotherapeutists and divers other inspired magi, reaching the neuropsychiatrist only after every other avenue has been unsuccess-

*Number of Deaths from and Rate per Hundred Thousand of Population of Diseases of the Nervous System and Organs of Special Sense*

| Disease | Number | Rate |
|---|---|---|
| Encephalitis | 1,245 | 1.3 |
| Meningitis | 3,652 | 3.8 |
| Tabes dorsalis | 1,695 | 1.7 |
| Other diseases of spinal cord | 3,106 | 3.2 |
| Cerebral hemorrhage | 84,177 | 86.8 |
| Cerebral embolism and thrombosis | 2,677 | 2.8 |
| Paralysis without specified cause | 6,056 | 6.2 |
| General paralysis of the insane | 6,421 | 6.6 |
| Other forms of mental alienation | 1,614 | 1.7 |
| Epilepsy | 3,088 | 3.2 |
| Convulsions (over 5 years) | 159 | 0.2 |
| Infantile convulsions | 1,882 | 1.9 |
| Chorea | 102 | 0.1 |
| Neuralgia and neuritis | 354 | 0.4 |
| Softening of brain | 853 | 0.9 |
| Other diseases of nervous system | 4,575 | 4.7 |
| Diseases of eye and adnexa | 89 | 0.1 |
| Diseases of ear and mastoid process | 3,262 | 3.4 |
| Total | 125,007 | 128.9 |

* Chairman's address, read before the Section on Nervous and Mental Diseases at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Hospital Service in the United States, J. A. M. A. **86**: 1009 (April 3) 1926.

2. United States Census Bureau report, 1923, p. 112.

3. Statistics concerning physicians were furnished by the Secretary of the American Medical Association, who, in concluding his very informative letter, states: "I wish to impress on you the need for remembering that the figures are approximate and are based on classifications that are determined by the class of the physicians themselves."

fully tried, and frequently when all hope is indeed lost. And because of the seeming hopelessness of neuropsychiatric cases and the curious attitude of the public toward psychiatrists, an attitude of mingled respect, fear and mystery, which his twin vocationist, the neurologist, does not share with him, and from which only recently is he being gradually released by the increasingly popular combination, as a neuropsychiatrist, of these two labors of love, medical students have hesitated to adopt neuropsychiatry as a lifework, notwithstanding its many possibilities.

### CONSTRUCTIVE CRITICISM IN ENGLAND

In a British report on present methods of care of psychiatric patients it was stated that:[4]

> "In July, 1924, in consequence of public dissatisfaction arising out of certain cases, a royal commission on lunacy was appointed to inquire into the existing law" in connection with certification of mentally disordered persons. "The commission sat for forty-two days" and states that "there is a clear line of demarcation between mental illness and physical illness. . . . The modern conception of mental illness calls for a complete revision of the attitude of society in the matter of its duty to the mentally afflicted. The keynote of the past has been detention; the keynote of the future should be prevention and treatment. . . . Every facility should be afforded to the mentally ailing to submit voluntarily to treatment; but when compulsory detention is unavoidable, the intervention of the law should be as unobtrusive as possible. . . . In particular, emphasis is laid on the need for providing facilities for the treatment of incipient mental disorder without the necessity of certification, which should be the last resort in treatment and not (as is now too commonly the case) the prerequisite of treatment."

Dr. George N. Robertson, professor of psychiatry at the University of Edinburgh,[5] calls this report "the most important event in the medicopsychological world last year, . . . admitted by experts to be a wonderful achievement. Its most striking departure is acknowledgment for the first time that the treatment of mental disorder is essentially a medical question," and that "strange as it may appear, the existing lunacy laws, particularly those of England, seem to have been devised with the object of obstructing medical relief."

In America, as in England, most existing lunacy laws were drafted years before the present concepts of mental diseases existed, and the primary intent of many of them was to prevent illegal incarceration of sane persons to gain control of their property. There is no need here to review the history of such practices, real or imaginary. Suffice it, as Mark Twain said of the premature report of his death, that they were "greatly exaggerated." The English commission states that "instances of insane persons being wrongfully certified or improperly detained must be of the rarest occurrence," this, of course, applying to the present time. As a matter of fact, it is probable that, for every person wrongfully detained in this year of grace as insane, hundreds are submitted to avoidable surgical operations, and a score have their lives shortened thereby; while, conversely, many die because of failure to have necessary operations. Yet no commission supervises the work of the surgeon and every one assumes that he faces problems in which he must decide, and often quickly, what is to be done or left undone. The community and the law have learned from experience and the right kind of education to repose confidence in surgeons which, because of the wrong kind of education and the inherent difficulties connected with the management of insane persons, psychiatrists do not fully share. For example, a member of the staff of almost any general hospital finds small difficulty in getting accommodations for quiet psychiatric patients. If, as so often happens, the managers of the institution do not recognize the character of the patient's illness, if he is classified as psychasthenic or asthenic or the victim of some constitutional disease, whereas he may be distinctly psychotic, he will be received. But the psychiatrist who brings a patient to the hospital is under suspicion, no matter what assurances he may offer of his patient's harmlessness. Thus, the more competent the attending physician, the less likely he is to secure accommodations for his psychotic patient.

### CONDITIONS THAT NEED CORRECTION

In the present article there is no intent to advocate any radical changes in the public care of the insane. My aim is to show how the intent of the law has been perverted and how one result of legislation has been to defeat its best purposes; and to suggest a method of relief.

Doubtless, a few persons have been wrongfully confined in private institutions. But their number is infinitely less than the number who are now confined improperly, though legally, in authorized public institutions. Under present laws, relatives of psychotic patients find small difficulty in getting "committable" patients sent to state hospitals, thereby escaping the trials of caring for them, together with all financial responsibility. It may be conceivable that relatives should not be forced to assume financial responsibility for the care of insane members of their families. But the law surely never contemplated that patients who are themselves well-to-do, even wealthy, should be cared for at the expense of the state. Yet, under present laws, it becomes not only the province, but the duty, of the courts to commit to a public institution, regardless of his means, any insane person brought before them, and, if relatives and guardians oppose the use of his money for his own benefit, to conserve his property as if he might be expected to live his normal life expectancy. Coincidently, the affairs of the committed patient are given in charge of a legally appointed guardian who is under no obligation to see that any of his funds are used for his personal benefit. The entire process concerns itself far more with legal than with therapeutic interest in the patient's welfare.

Though the intent of lawmakers was, in part, to protect against illegal detention, it seems equally clear that the principle function of the state, in this connection, is to provide for *indigent* insane persons, in the best possible manner, commensurate with economic justice. Most states make scant or no inquiry as to the financial status of their insane wards and do not exact compensation for their care. Neither, as is proper, may the state discriminate in the care, the type of clothing, or the character of the food given its patients. And, as a result, a committed person who may have sufficient wealth to insure every comfort finds himself cared for, fed and clothed in the same manner as his neighbors, and perchance roommates, who are indigent in the fullest meaning of that word.

Now, to one who is socialistically inclined, such an arrangement may be proper; but since no such arrangement is practiced elsewhere, it is difficult to understand

4. Lunacy Reform, London Letter, J. A. M. A. **87**: 681 (Aug. 28) 1926.
5. Lunacy Reform, London Letter, J. A. M. A. **88**: 1495 (May 7) 1927.

why it should be forced on the unlucky person who, having lost his reason, is no longer able to protect himself, and who is, indeed, thus made the victim of a kind of communism; and meanwhile, in many instances, whose funds are being used by, or allowed to increase for the benefit of, frequently undeserving heirs who, through entirely legal channels, are put in position to benefit from his misfortunes, the benefit being the greater as a result of depriving him of comforts to which he is entitled. In other words, if a patient is committed to a state hospital, he, in practice, loses his rights to private care, special nursing, special food and suitable clothing, utterly regardless of his past social life, wealth and achievements.

If the same principle applied with other diseases, the hopeless victim of tuberculosis or cancer, for example, because the state has facilities for the care of indigent persons with such diseases, would be compelled to enter a public institution and be served like other indigent persons.

In some states, financially competent insane persons are required to pay for their care. But this is an unsatisfactory arrangement because no one believes that the state should practice neuropsychiatry for gain or be allowed to discriminate in the care given its patients. In some states, patients who are able to do so are required to pay good rates for their care, much more than the per capita cost; but such an arrangement is clearly unjust and should be illegal, since the care of all patients must be the same and a patient so charged is paying for that which he does not receive.

Since some may regard these statements as abstract and therefore inconsequential, let me state that I can recall many instances in which patients possessed of large means have been committed to state institutions and cared for as indigent, and on death have left considerable sums of money of the use of which, during life, they were deprived by law, which money passed to relatives who were directly responsible for preventing the patients from using it, and who, in a few instances, dissipated in litigation far more than would have been required to care privately for the patient had he lived many years longer than he did. In at least one state, regulations governing the control and detention of private psychiatric patients is so strict that several private institutions have been erected for the care of such patients near, but outside, its borders. All regulations, of course, have been made only with good intentions of the lawmakers and of the psychiatrists who have advised them. In spite, however, of the strictness of these laws, there are certain institutions which, without observing the regulations requiring commitment, care privately for psychotic patients, practicing a species of psychiatric bootlegging which it is difficult to condemn.

### RESPONSIBILITY OF NEUROPSYCHIATRISTS

But the fault is not all with the public or with the legislatures. Much of it is with the neuropsychiatrists. We have submitted without protest to much undeserved contumely heaped on us as expert witnesses which has cast a cloud over our good reputations. Honestly indignant at occasional violations of honor on the witness stand and conscious of personal rectitude, some of us, unlike good sportsmen and scientists, have aspersed the motive of those who disagreed with us and have thereby fanned the flame of resentment which has scorched all of us. We have made little effort to protect our rights or the rights of our well-to-do patients who are mentally deranged; the state protects the indigent. In a spirit of ultrafairmindedness and conservatism, we have become obsessed with admiration of the improvements that followed state care of the insane and have sometimes forgotten that, good as state hospitals are, they should compare with private institutions only as good county hospitals compare with semipublic and private general hospitals. There is no more reason for the state to care for the insane person who is financially competent than there is for the state to demand the right to care for all surgical cases, or that all persons hopelessly ill from any cause shall become state patients. The taxpayer should revolt against the practice; the psychiatrist should do likewise, not because thereby he may receive financial benefit, but because the attitude of the state fosters the general impression that insanity is allied to criminality and that persons who suffer from it have no rights which either state or individual need respect. Even among physicians there are many who, at the first hint of psychosis in a patient, are quick to suggest his immediate removal to a state hospital on the principle that his usefulness is a thing of the past. The popular conception of insanity, alike among laity and among physicians, is that it is almost hopeless and that no one should be under any particular obligation to care privately, and with skilled nursing, for its victim. If one states that a patient is delirious or suffers from brain fever, or if one adopts some other euphemism, all concerned are ready to serve him tenderly and sympathetically. But if one uses the term "insanity," in many instances a change of feeling will be at once noted among relatives and attendants. Fear, and something approaching abhorrence, lessen, if they do not replace, natural kindliness and desire for devoted duty. This is because we have not divested the minds of the people and of many of our colleagues of the medieval association of psychosis with criminality. Even medical students, with rare exceptions, find little interest in psychiatry and are apt to be repelled by it, albeit many of them exhibit great curiosity in regard to it, curiosity that savors more of the museum in which to pass an idle hour than of the laboratory in which to pass a lifetime.

### INADEQUACY OF PRESENT PRIVATE INSTITUTIONS

We are at fault in that we have provided inadequately for private care of patients. The public should be taught that psychoses are manifestations of disease quite as distinct as typhoid, cancer or traumatism, and that we are prepared to treat patients so afflicted; that a substantial percentage recover and that, especially in the early stages, much may be done for them. Having this in mind, we should provide more and better institutions for mentally disordered patients. There is, perhaps, no great need for increase of strictly private sanatoriums, and we might well direct our efforts to the erection of institutions, planned on the principle of general hospitals, open to all reputable psychiatrists, and conducted with hospital costs independent of physicians' fees. Such institutions should be arranged for patients who live on different financial levels. Except for licensing them, there should be no more need for state control than there is for state control of general hospitals, with the single exception that the laws should permit of commitment of refractory patients, under restrictions similar to those now used in connection with state commitments, the whole purpose being to minimize compelling patients to go through court pro-

ceedings to allow for either public or private care. Abuses that might occur are susceptible of cure by means similar to those adopted by the American College of Surgeons for the standardization of hospitals.

By no means of least importance, we should insist that the present method of bringing a "charge of insanity" against a person whose sanity is questioned shall be discontinued, and that in every large city in which there is no psychopathic hospital, at least one general hospital shall be compelled to maintain properly equipped wards for temporary detention of alleged insane persons, pending commitment, thereby removing the stigma that attaches, under the laws of many of our states, to the present method of arrest and detention in court-house or jail.

### NEED OF BETTER FACILITIES FOR SENILE PSYCHOTIC PATIENTS

Among other pernicious customs is that of committing senile patients to state hospitals. Though no patient is more troublesome in the ordinary household than the patient with senile dementia, though such patients are not suitable for care in private homes, it should be recognized that grave injustice is done them by committing them to state hospitals and equal injustice is thereby done to other patients in such institutions. We should urge, especially in the more densely populated states and cities, some other arrangement for persons who suffer from psychoses purely incidental to old age. I have no special plan to suggest; but I have often witnessed and been distressed by the commitment of aged patients who died within a few days after removal and a trip of many miles to the central state hospital; and, knowing the considerable number of such patients, I believe that a better arrangement is feasible, and one that, in addition to a more humane management of the patient, would remove the imaginary stigma of threatened inheritance of a type of disorder which, in all probability, is never passed on to descendents.

### WANTED: REMOVAL OF NEUROLOGIC PATIENTS FROM ALMSHOUSES

Not least important is the problem of the neurologic, as opposed to the psychiatric, dependent patient. Almost every almshouse has a number of patients suffering from hemiplegia, tabes, multiple sclerosis, muscular dystrophy, paralysis agitans and the now widely prevalent parkinsonian sequel of epidemic encephalitis, who are left to the tender mercies of the physically sound but dependent inmates. All such patients suffer from pains and discomforts that might be mitigated. Better might they be cared for in county hospitals, where relief might be afforded from their infirmities but which now refuse them because the beds are needed for the acutely ill. I do not suggest that either state or county shall erect separate institutions for neurologic patients except where their number is large. But some provision should be made, either in separate wards or in separate buildings connected with county hospitals, to be devoted exclusively to their care. Their number is infinitely less than the number of the insane. Yet the time cannot be distant when a humane public sentiment will demand and provide adequate accommodations, possibly through a state system, for these unfortunates, many of whom are helpless as a result of industrial accident or disease, and from whose services the rest of us have benefited. Such patients should be under medical observation and have enough nurses, masseurs and otherwise skilled attendants to relieve at least some of their distresses.

### AN OPPORTUNITY FOR PHILANTHROPISTS

Hundreds of neurologic incurables exist in the homes of relatives. Oft refused, more often too proud to seek, entry into almshouses, they receive no care, or only such care as can be given at odd moments by kin, who themselves are battling for a meager existence. Their ills have little of the dramatic appeal of surgical cases and are not attractive to welfare workers. They are either "just nervous cases" and therefore partly responsible for their own ills, or, because deemed hopeless, not worth special effort or attention. Their diseases progress but slowly and they sit, or lie, or totter precariously about, unheeded by the passing world.

In this connection I have had an oft recurring dream over many years that I hope may some day be converted into reality, a dream of a great and, as far as I know, previously unconsidered charity, that will do much to lessen pain, discomfort and unhappiness; a dream that some day philanthropists will erect and endow institutions for the care of indigent and semi-indigent victims of organic neurologic disease with conveniences and comforts beyond those which the state or county should be expected to provide. There need not be financial arrangement for medical services, for whoever gives the means for such institutions will be overwhelmed with offers of free medical treatment from the most competent among us.

Of the need of better segregation of insane criminals from the noncriminal insane; of the desirability of legislation whereby insanity, successfully pleaded as a defense in homicidal cases, will automatically insure that the murderer will be confined for life in a hospital for insane criminals; of the need of special institutions for mentally defective and psychopathic juvenile offenders; of the necessity of some sort of standard for determining the upper limit of feeblemindedness in the numerous cases which social service workers are bringing to us for institutionalization; of these and a score of allied socio-economic problems, time and fear of unduly taxing your patience forbid me to more than hint. Suffice it that neuropsychiatrists in private practice, apparently occupying our minds with an overwhelming load of fascinating research problems, seemingly have been content to let the social service workers, the foundations, and, recently trailing a little, the chiefs in public hospital service take the initiative in sociological problems while we assume an attitude of interested, complaisant and, in the main, acquiescent observation. We should rouse from our lethargy and insist on reassuming our rightful place in such leadership, not combating the efforts of our co-workers, who have temporarily distanced us, but doing team work with them, utilizing all that they have to offer and combining with it the special knowledge which we have gained over long years of experience. And until, and unless, we do that we are negligent.

### SUMMARY

1. Nothing here stated is intended to reflect on the present excellent state systems of care of psychiatric patients.

2. Neuropsychiatrists in private practice should take a larger part in legislation and other social service phases of their work.

3. Laws should be modified to encourage the private care of psychiatric patients and to compel relatives and guardians of such patients who are not indigent to provide adequately for them.

4. The public should be taught intensively that psychopathy is disease and not criminality.

5. As a result of improved laws and better public respect for psychiatry, young men will more willingly engage in neuropsychiatry and will seek the privilege of working in the broadest, least explored, and most fascinating and diversified field in medicine and surgery and one that, through awakening public interest, will offer splendid opportunities.

6. More institutions for private care of psychopathic patients are needed, but they will achieve their greatest usefulness only if they are arranged for those who live on widely varying financial levels and are open to all psychiatrists, just as general hospitals are now open to all reputable physicians.

7. Better provisions are needed for senile patients, many of whom have but a few days' or a week's tenure of life and who but rarely should be committed to state hospitals.

8. Patients with organic neurologic disease should be segregated from almshouses and cared for, either in separate institutions or in separate wards within present institutions, with adequate provision for decent medical care and nursing.

9. A great opportunity awaits the philanthropist who will provide, and endow, institutions for the care of victims of incurable organic diseases of the nervous system, as distinguished from those who are psychically afflicted.

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## PLASTIC SURGERY OF THE RENAL PELVIS *

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The effect of stasis in the production of renal disease is well recognized, and the frequent incidence of it as a factor in preventing the kidney from doing its work normally is acknowledged. It is only too evident that conditions of an obstructive nature in the passages bearing urine away from a kidney, if they persist, will seriously injure the kidney. In those instances, however, in which the degree of stasis is relatively slight, such injury, though definite, may be of such slow progress that if the mechanical faults can be corrected the remaining renal parenchyma will continue to function in a satisfactory manner. This is true because of the large factor of safety in respect to renal tissue with which the human body is endowed. So it is not infrequent to find instances in which the surgical response to a condition of stasis—or, as it is more commonly called, hydronephrosis—should be the relief of such stasis without the sacrifice of the kidney. Nephrectomy, though it may cure the patient, is too drastic a procedure if some more conservative operation is possible. We have been led, therefore, to study various operative procedures in their application to conditions of stasis causing hydronephrosis, which are of a distinctly conservative type in that they attempt to correct faulty drainage with preservation of the kidney.

It is not my purpose in this communication to discuss renal stasis caused by ureteral obstruction due to stone or stricture, but to confine consideration to that group of hydronephroses primarily due to anatomic abnormalities, in most instances associated with abnormal distribution of the renal vascular supply. In this group the stasis is confined to the pelvis of the kidney; while the ureter, as a rule, is normal. Also space does not permit here a discussion of the physiology of the renal pelvis and ureter, or of the anomalies of renal development together with the abnormalities of vascularization of the kidney.

In this group of cases of renal stasis, especially because the obstructing factor seems frequently to be a mechanical one, and also because infection is frequently absent, opportunity for a conservative operative procedure is marked. This is also true because in a large number of cases of hydronephrosis of this variety there is present a considerable amount of renal parenchyma capable of function, the sacrifice of which should be avoided.

A study of cases of hydronephrosis as they have occurred in the clinic of the Peter Bent Brigham Hospital during the past ten years finds sixteen instances in which the stasis was associated with renal and vascular maldevelopment. In only three of these was nephrectomy done because of the extreme destruction of the renal parenchyma. In the remaining thirteen, some form of conservative or plastic operation was performed. The present communication is a report of the late results of such operative attempts.

The following operations were done: (1) ligation and section of apparently obstructing vascular trunks; (2) longitudinal incision at the ureteropelvic junction with transverse closure; (3) division of the ureter at its junction with the dilated pelvis followed by its reimplantation into another area of the pelvis remote from abnormal vessels; (4) resection of portions of the redundant renal pelvis; (5) lysis of perirenal and periureteral adhesions; (6) nephropexy. In several instances a combination of two or more of these procedures was used.

In ten cases the hydronephrosis was associated with one or more abnormal arteries. In two cases it was accompanied by abnormality of the veins, the arterial supply being normal. In one, both veins and arteries were abnormal. Duplication of the ureter and pelvis was present in two cases, in one of which the vascular supply was also abnormal, and in one case a fibrous band was found connecting the lower pole of each kidney, though a complete fusion in the form of horseshoe kidney was not present.

### REPORT OF CASES

CASE 1.—A man, aged 19, had attacks of pain with nausea and vomiting for two years. The urine showed only a slight trace of albumin. Operation was performed, March 6, 1917. The capacity of the renal pelvis was about 500 cc. The lower branch of the renal artery crossed the junction of the normal ureter with the dilated pelvis, and was in intimate apposition. Incision into the pelvis failed to discover either valve formation or stricture. Longitudinal incision was made with the transverse closure at the ureteropelvic junction. Nephropexy was done, followed by recovery. Examination, Aug. 8, 1918, revealed that renal function was normal. The outline of the pelvis was funnel shaped in the pyelogram. There were no further attacks of pain. The urine was normal. The patient reentered the hospital, Feb. 23, 1926. He had been well till after recent unusual exertion, which had been followed by

* From the Urological Clinic of the Peter Bent Brigham Hospital
* Read before the Section on Urology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

return of the old pain in the loin. There was no fever. The urine was normal. Ligation of the lower polar artery was done, March 1, 1927. There were no further attacks of pain.

CASE 2.—A girl, aged 18 years, had had pyuria without pain, due to infected hydronephrosis of the right kidney. Operation, April 6, 1922, revealed moderate fibrosis of the perirenal and peripelvic fat. No vessels were abnormal. At the outlet of the pelvis considerable scarring was present, but it was not possible to demonstrate stricture. A longitudinal incision at the ureteropelvic junction was united transversely. The wound healed promptly. The patient could not be reached for pelvic lavage to clear up the infection. Feb. 23, 1926, she reported that she had been well since the operation, but the urine still showed a moderate number of pus cells and, on culture, the colon bacillus.

CASE 3.—A man, aged 19, had had intermittent attacks of pain in the left loin for three years. The urine was normal but for a slight trace of albumin. A pyelogram showed hydronephrosis of each kidney, most marked in the left. Operation, July 23, 1919, revealed an abnormal lower polar artery at the ureteropelvic junction. The ureter was cut across and reimplanted into the pelvis in a more favorable position. The patient was discharged with the wound healed, eleven days after operation. He has remained continuously well for the past eight years.

CASE 4.—A girl, aged 14 years, had had attacks of pain and vomiting for one year. Operation, Oct. 10, 1921, for hydronephrosis, revealed a double lower polar artery. Reimplantation of the ureter was done after removal of a segment at the ureteropelvic junction for histologic examination. The patient was discharged healed thirteen days later. Pathologic examination revealed a normal ureter. Five and a half years later, the patient has remained entirely well.

CASE 5.—A girl, aged 14 years, had had attacks of dull pain in the left side for three years. Operation, March 17, 1922, revealed hydronephrosis with an aberrant lower polar artery and no artery entering the normal renal hilum. The ureter was transplanted. The patient was discharged healed twenty days later. Five months later she reported that she was entirely well. May 18, 1927, she had been entirely well. The urine was normal.

CASE 6.—A girl, aged 12 years, had had attacks of pain and vomiting since infancy. Operation, May 11, 1925, revealed hydronephrosis with an aberrant polar artery. The ureter was transplanted. The patient was discharged healed on the fifteenth day. Between that time and April 20, 1927, the patient had been in the hospital twice, suffering from chorea. There have been no further attacks of pain and the urine is normal.

CASE 7.—A man, aged 19, had had recurring attacks of pain in the left costovertebral angle. Operation, May 23, 1925, revealed hydronephrosis with an aberrant artery. The ureter was reimplanted. He was discharged healed twenty days later. A section of the ureteropelvic junction removed at operation showed chronic inflammation. May 18, 1927, the patient reported that he had not had trouble since the operation.

CASE 8.—A man, aged 18, had pain in the left loin, and pyuria. Operation, June 12, 1926, revealed hydronephrosis with several aberrant arteries running at different levels, one in close association with the ureteropelvic junction. Transplantation of the ureter was done after excision of its upper end. The patient was discharged healed on the fourteenth day. Pathologic examination of the ureter revealed chronic and acute inflammation. The patient one month later reported that the urine still contained a moderate amount of pus. There was no further pain. Pelvic lavage was done with 1 per cent mercurochrome-220 soluble. April 22, 1927, he reported that he was well. The urine was sterile. A renal function test resulted in return of the phenolsulphonphthalein from the left side and 10 per cent from the right in ten minutes.

CASE 9.—A man, aged 35, had had three attacks of pain in the right lumbar region with hematuria. A pyelogram showed hydronephrosis and a tortuous upper ureter. There was slight pyuria. At operation, March 20, 1925, the kidney was found held down by a small artery arising from about the bifurcation of the aorta and running upward to enter the lower pole of the kidney quite apart from the rest of the arterial supply, which was normal. The upper three inches of the ureter was redundant. The artery was divided and the kidney suspended. The patient was discharged healed eleven days later. He reported, Jan. 17, 1927, that he had remained well. The urine was normal.

CASE 10.—A man, aged 50, had had pain in the left loin and frequency of urination. The cystoscope showed residual urine due to a median prostatic bar. A pyelogram showed hydronephrosis on the left side, which was infected. Operation, July 15, 1926, revealed hydronephrosis associated with anomaly of the veins, two branches running from the lower pole of the kidney to the spermatic vein. Excision of the veins and nephropexy, with punch removal of the median bar, were done. The patient was discharged three weeks later. He reported, March 28, 1927, that urination had improved, but the urine still contained pus. There was no further pain in the loin. Lavage of the renal pelvis was done with mercurochrome. One month later the attending physician reported that the urine was sterile.

CASE 11.—A woman, aged 53, who was acromegalic, had had attacks of pain in the region of the right kidney. Operation, July 19, 1923, revealed an enormous hydronephrosis in the ptotic kidney with arterial supply at the upper and lower poles, but none entering the hilum. Excision of a redundant pelvis was made, which, when opened, was found to be double. Reimplantation of the upper end of the ureter into the lower end of the suture line of pelvis was done. The patient was discharged healed on the fourteenth day. Feb. 15, 1926, she entered the hospital for further observation in regard to acromegaly. She had had no renal pain or trouble since the operation. The urine was normal except for sugar.

CASE 12.—A boy, aged 15 years, had had pain and an intermittent mass under the left costal margin. The urine was normal. Operation, Oct. 1, 1926, revealed hydronephrosis of the lower half of a double pelvis. There was a dense adhesion of this to the other pelvis and ureter. The dilated pelvis was dissected free and a diamond shaped piece excised to restore the size to nearly normal. He was discharged healed ten days later. A pathologic examination of the excised pelvis showed chronic pyelitis with muscular hypertrophy. May 5, 1927, the patient's mother reported that the boy had done very well since the operation. He was growing and gaining in weight.

CASE 13.—A woman, aged 23, had valvular disease of the heart. During a previous pregnancy she had had severe left-sided pyelitis, with persistence of pyuria and pain. Operation, March 2, 1925, revealed hydronephrosis with a large aberrant vein from the lower pole of the kidney to the ovarian vein, and a fibrous band uniting the lower pole of the kidney across the spine to the organ of the other side. Division of the band and of the vein was done. The patient was discharged healed fourteen days later. The pyelitis was treated with several injections of mercurochrome. The urine was sterile two months later. May 1, 1927, she had remained well.

In the remaining three cases a nephrectomy was done with complete relief of symptoms. The details of these are not of present interest.

## COMMENT

From the end-results in these cases it will be seen that in my experience the operation which attempts to widen the ureteropelvic junction by a transverse suture of a longitudinal incision has not been followed by permanent relief. In the two instances in which the method was used, one patient still has infected urine with pyelonephritis; the other experienced recurrence of pain for which a second operation was necessary. This type of plastic operation is best adapted to relieve a stricture at the area where the incision is made. In none of the material from this area, however, which I have subjected to pathologic examination, has a stricture or valve been found.

On the other hand, uniform success has followed the free transplantation of the upper end of the ureter

in the seven instances in which this operation was employed. By this procedure the ureter is placed in a position in the pelvis where dependent drainage is assured, and where at the same time it is entirely free from contact with any aberrant vessel. Whatever may be the rôle of such an aberrant artery in the formation of hydronephrosis, it seems clear that once the hydronephrosis has grown to be of such size as to cause symptoms, it is faulty drainage away from such a pelvis that creates the surgical problem. Simple division of the artery, even if one is of the opinion that the loss of its blood supply to the kidney is of no moment, is by no means so direct an attack on this problem of faulty drainage as is a ureteral transplantation, combined if necessary with resection of a redundant portion of the pelvic wall. That there is abundant blood supply in these structures to insure prompt healing is shown by the fact that the average time spent in the hospital after operation by seven patients was fifteen days.

## ABSTRACT OF DISCUSSION

DR. THOMAS D. MOORE, Memphis, Tenn.: The modern trend of renal surgery is toward conservatism, and Dr. Quinby is to be commended for his efforts along this line. Plastic operations on the kidney pelvis, designed to relieve hydronephrosis, have failed in a high percentage of cases. Less than twenty-five successful cases have been reported in the literature, including one of Dr. Quinby's. In any surgical attack on the kidney, following which one cannot promise the patient at least a fair chance of relief, conservatism probably would find a truer expression in that procedure which offers the best prospect of permanent relief. Cases in which plastic operations may be applicable have been divided by Legueu into those of "choice" and those of "necessity." Most of us probably would limit our plastic attempts to the latter group; that is, those in which the opposite organ has been removed or is functioning poorly. Two fundamental principles should be observed in these cases: First, the infection so commonly associated with renal stasis should receive adequate treatment before any plastic operation is attempted. Second, whatever the nature of the obstruction causing the hydronephrosis, it must be removed either before or during the operation. It must be remembered that hydronephrosis is frequently of the intermittent type, in which there may be prolonged periods of quiescence between attacks; hence, one cannot attach too much significance to a period of clinical relief from pain following a plastic operation. It will be of great interest to follow Dr. Quinby's cases more closely from the standpoint of pyelography and the ultimate functional results.

DR. D. N. EISENDRATH, Chicago: Dr. Quinby's paper has clarified this matter greatly. I wonder whether he has checked these cases up by functional tests made four or five years afterward, and also by pyelography. I believe that this is necessary in the reexamination of these cases. As to the vascularization of the kidney and its accessory vessels, I have been of the opinion, until within the last month, that we could ignore the artery of the lower pole. My colleague, Dr. Koll, operated on a patient with a very large pelvis. He ligated the accessory artery to the upper and lower poles, respectively, and about a week later the patient began to show symptoms of sepsis. Dr. Koll had left the patient with me, and I tried expectant treatment as long as I could. Finally, it became necessary to operate and we found a very diffuse infection around the kidney, with a huge area of necrosis, corresponding to the zone supplied by the lower artery. This is a valuable observation, showing that we cannot ignore these accessory arteries. They are as much end arteries as are the main branches of the renal arteries. I have had this subject in mind for ten years or more and have felt rather pessimistic about conservative operations, such as Dr. Quinby has shown us. It all depends on whether infection is present or not. If it is, I think we cannot hope for much from implantation. One thing that has been proved by Dr. Quinby is that pyeloplasty, by the Heineke-Mikulicz method, does not offer much hope. I should like to refer to a case in which the late Dr. John B. Murphy operated in this way. I saw the woman with a large hydronephrosis fifteen years afterward. She had been well until about a year before that. At operation we found a typical hydronephrosis. This shows that we must follow these cases for many years before we can say how much success we have had with the plastic operation.

DR. GILBERT J. THOMAS, Minneapolis: Dr. Quinby is to be congratulated for again calling our attention to a condition which many of us are missing in our everyday practice. In many instances, when a patient comes in for urologic study because of indefinite abdominal pain, he obtains relief after the ureteral catheter is passed and the pelvis is irrigated. We may not see this patient again because he has obtained temporary relief, but he is not cured. The cause of his trouble is still present and is due to some condition which interferes with drainage from the kidney. In my opinion, this is usually caused by two things: first, ptosis of the kidney, or a kidney which is not in its usual place; and, second, incomplete obstruction at or near the ureteropelvic juncture. We have used a Y shaped incision at the juncture of the ureter and pelvis of the kidney (suggested by a surgeon whose published article could not be traced), or at the site of the ureteral obstruction. The juncture of the perpendicular incision and the lateral incisions (which should be at the site of the obstruction) opens the ureter wide. By sewing the tip produced by the juncture of the two lateral incisions to the base of the Y, a very wide ureter is formed. In the two or three cases in which we have used this method, it has definitely enlarged the ureter at the site of the stricture.

DR. GEORGE G. SMITH, Boston: Regarding the technic of these operations on the kidney pelvis, and regarding particularly the question of drainage immediately after operation, it seems to me essential that one should insure perfectly good drainage of the kidney pelvis if one expects primary closure of the pelvic wound. It has been my custom to pass a tube, about one-fourth inch in diameter, through the cortex of the kidney, pulling it down by means of a clamp passed from the pelvis out through a narrow place in the cortex. Then a ureteral catheter is passed through this tube and down the ureter almost to the bladder. This splints the ureter and holds it open. This is done before the pelvis is closed, and then the plastic operation is performed. I have not had any difficulty in the two or three cases in which I have done this in obtaining a practically primary closure of the pelvis. The incision through the cortex heals very quickly; if one has secured good drainage the urinary fistula closes rapidly. I believe that this tube takes care of infection in the kidney pelvis, prevents the kidney pelvis from being distended with blood clots, places the kidney pelvis at rest, and gives us the essentials in securing primary union of the mucous membrane.

DR. ROBERT H. HERBST, Chicago: Dr. Quinby's paper calls attention to the questionable value of the Heineke-Mikulicz procedure applied to the correction of strictures at the ureteropelvic junction. My attention was attracted to this in a recent operation in which the drainage from the renal pelvis did not improve, although we were able to make a wide opening between the pelvis and the ureter. It seems to me that the relation of the ureter to the pelvis is as important as widening of the strictured area, and I feel, as does Dr. Quinby, that placing the ureter in another part of the pelvis is likely to be followed by better results.

DR. W. C. QUINBY, Boston: In those cases in which we have made subsequent pyelograms, as has been done in four or five instances, we have found that the renal pelvis does not entirely regain its normal size, but apparently this is not necessary if there is normal drainage away from such a pelvis. I disagree with Dr. Moore that there will be instances in which it will be impossible, because of obstruction, to clear up the infection in the renal pelvis until after operation. For instance, in the case of the woman who had severe cardiovascular disease, an attempt had been made to overcome the pyelitis for a long time. She was a very tractable patient, and stood all sorts of things in

the way of pelvic lavage, dilation and so forth, but all such treatment was in vain. I am sure that in many instances it will be impossible to clear up the infection until we provide for adequate drainage away from the kidney. I did not take time in the paper to pay my respects to Dr. Eisendrath for the good work he has done in regard to these vascular anomalies. His work is outstanding and of great value. More work will have to be done, however, and if we all keep at it we may get some definite information regarding these anomalies as well as other factors pertaining to this question. Although Dr. Thomas feels differently, I cannot agree that these small plastic operations at the juncture of the pelvis and ureter are as easily accomplished as the straight ureteral transplantation. They are difficult, and in my hands the two instances of the Heineke-Mikulicz type of plastic operation were fussy; although the results were clinically successful for a time, the operation did not go smoothly and the end-results were not satisfactory. I should feel the same about the Y shaped plastic operation that he mentioned. Are not all such flap procedures in this region merely a failure to recognize that the ureter at its upper end has an adequate vascular supply just as at the lower? We do not hesitate to transplant the ureter at the lower end, putting it into the bladder in any position we think advisable; and, so far as I can see, all these flap operations are an admission of our fear that if we make a free transplantation it will not heal. I am frank to admit that the first time I did this I did it with fear and trembling. It does heal, however, and the results are excellent. I agree with Dr. Smith that if one feels that healing will be interfered with, either by bleeding or by pressure, drainage away from the kidney according to his plan will be wise. I have never had to do it but am glad to know of this procedure, in case it should seem necessary in some other future cases.

## CONTROLLABLE FACTORS AFFECTING THE MORTALITY OF ACUTE APPENDICITIS

### SOME FALLACIES OF PRESENT-DAY TEACHING *

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The main premise underlying this article is not new. At least every surgeon knows that delay in operation and the administration of laxatives are the greatest factors in the mortality of acute appendicitis.

Two reasons have led to our presenting this paper:

1. National and local statistics show an increase in the mortality of acute appendicitis during the past ten years.

2. The one bearing the greatest responsibility, the surgeon, has the least to do with the reduction of the mortality.

We shall attempt to aid the early recognition of acute appendicitis by setting forth the symptoms and signs of the disease as shown by an exhaustive study of the clinical records of the Samaritan Hospital, and we submit the plan by which our mortality has been reduced.

In a previous communication we called attention to the mortality of acute appendicitis and the close relationship between this and the time that elapses from the onset of symptoms to operation. The clinical records of 750 patients operated on at the Samaritan Hospital were reviewed. Briefly, they showed that when patients enter the hospital early, the mortality is low. When there is delay, the mortality is high. For example, the maximum mortality was 9.6 per cent in 1922 and the average time between the onset of symptoms and operation was 85.2 hours; in 1923, when the mortality was 1.53 per cent, the average time was 49.5 hours.

Investigating further the problem of mortality, we were led to study the reasons for this delay. While we found that, in a certain percentage of cases, patients refused to enter the hospital early or had been treated at home before calling a physician, in the majority of instances the physician did not urge an immediate operation because he was not sure that he was treating appendicitis until he had the symptoms and signs of peritonitis. Of the 750 cases studied, perforation had occurred in 338, or 45 per cent, before entrance to the hospital, and the attending physician had diagnosed a perforation or an associated peritonitis in less than 3 per cent. This led us to study the symptoms and signs, correlating them with the pathologic conditions found. Two hundred and eighteen consecutive cases with complete clinical records, including histologic examinations of the removed appendixes, were reviewed.

Pain was the only symptom of which every patient complained. In numerous cases of acute catarrhal appendicitis, proved by histologic examination, this was the only symptom elicited, and may be accepted as the only one present in 100 per cent of the cases.

Nausea was a complaint in 41.3 per cent; without peritoneal inflammation, in 35.2 per cent; with frank peritonitis, in 44.5 per cent. A definite relationship could not be established between nausea and distention of the appendix, or nausea and fecal concretions. In the acute catarrhal and pregangrenous types, with an infection sufficiently virulent to produce a serous exudate, nausea was practically constant (90 per cent).

Vomiting was present in 59.2 per cent of the entire series of patients; in 50 per cent of those without peritonitis and in 63.9 per cent of those with peritonitis, indicating that the more severe the type of appendicitis the greater its frequency. It occurred in 82 per cent of cases of gangrene with perforation; in 63 per cent of the acute suppurative and perforative types, and in 45 per cent of the cases of acute catarrh.

Localized tenderness, second in frequency to pain, was present in 89 per cent of cases; without peritonitis in 89.3 per cent, and with peritonitis in 88.8 per cent. No attempt was made to differentiate between pain on superficial or deep pressure, cognizance being taken only of its presence. It was more frequent in the more severe types of appendicitis.

Increased tension, manifested by a mild or early degree of rigidity, was noted in certain cases in which the resistance offered to the palpating hand was greater on the affected than on the unaffected side, and yet not marked enough to be termed rigidity. It was present in 39.4 per cent of all cases; in 43.3 per cent of cases without peritonitis, and in 37.5 per cent with peritonitis.

Rigidity occurred more frequently (66.5 per cent) in patients with general peritonitis than in those with local peritonitis (44.9 per cent); while only 40.6 per cent of those without peritoneal involvement or with simple, uncomplicated appendicitis showed rigidity.

Constipation occurred so infrequently that its presence as a diagnostic aid may be disregarded, although the large number of patients who had received laxatives before admission may have influenced our observations.

* From the Surgical and Pathological departments of the Samaritan Hospital.

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

A temperature normal or less than normal was noted in 25.8 per cent of all patients prior to operation; in 31.1 per cent without peritoneal involvement; in 23.1 per cent with local peritonitis, and in only 15.6 per cent with general peritonitis. These figures indicate that the less severe or the more localized the inflammation, the greater the possibility of a normal temperature. Some allowance must be made for those who may have had a rise in temperature which subsided before they entered the hospital.

Bearing in mind the influence of new surroundings and the psychic element of a probable operation, we arbitrarily chose a pulse rate of 90 as indicating the upper limit of mental influence. A pulse rate below 90 was found in 40.8 per cent of all cases. However, if these cases are separated according to peritoneal involvement, a greater deviation from the normal is again found in cases showing peritonitis, 55.9 per cent without peritonitis, 37 per cent with local peritonitis, and only 15.6 per cent with general peritonitis giving a pulse rate below 90.

A leukocytosis of more than 10,000 per cubic millimeter was present in 82.8 per cent of cases, occurring as follows: without peritonitis, 79.7 per cent; with local peritonitis, 84.8 per cent, and with general peritonitis, 95 per cent.

The total number of leukocytes seemed of greater value than did the percentage of polymorphonuclears, for while this percentage was increased in patients with a leukocytosis in 94.3 per cent, it was increased in only 68 per cent with counts below 10,000 cells per cubic millimeter. There is apparently an upper level of leukocytosis in acute appendicitis, even with an associated general peritonitis. Only 0.5 per cent of this series was above 35,000; 1 per cent over 30,000; 6 per cent more than 25,000, and 13.3 per cent above 20,000. Of those above 25,000, 90 per cent had a general peritonitis.

Table 1 represents a summary of our observations in 218 consecutive cases of acute appendicitis.

TABLE 1.—*Observations in Acute Appendicitis*

| | No Peritonitis * | Local Peritonitis † | General Peritonitis ‡ |
|---|---|---|---|
| Pain | 100.0 | 100.0 | 100.0 |
| Nausea | 35.2 | 44.8 | 42.3 |
| Vomiting | 50.0 | 60.2 | 80.9 |
| Local tenderness | 89.3 | 89.8 | 89.7 |
| Increased tension | 43.3 | 39.8 | 26.9 |
| Rigidity | 40.6 | 44.9 | 65.5 |
| Increased temperature | 68.9 | 76.9 | 84.4 |
| Increased pulse | 44.1 | 63.0 | 84.4 |
| Leukocytosis | 79.7 | 84.8 | 95.0 |

* 33.9 per cent; 81 per cent simple appendicitis.
† 54 per cent; 49 per cent nonperforating suppurative or gangrenous, 44 per cent perforating suppurative or gangrenous.
‡ 12.3 per cent; 100 per cent perforating suppurative or gangrenous.

Pain, localized tenderness, increased tension or rigidity and leukocytosis stand out prominently. Pain is present in 100 per cent of cases regardless of peritoneal involvement. Localized tenderness is practically constant. Increased tension and rigidity show an interesting and theoretically expected relationship as the inflammation extends from the appendix to the peritoneum. With mild inflammation limited to the appendix, increased tension is greatest and rigidity is least. With extension of inflammation and general peritonitis, increased tension is least and rigidity greatest. Combining both under a general heading of increased resistance to the palpating hand, the greatest incidence is found with the most widespread inflammation, as follows: without peritonitis, 83.9 per cent; with local peritonitis, 84.7 per cent; with general peritonitis, 92.4 per cent. The commonly taught symptoms and signs, such as nausea and vomiting and increased pulse rate, occur in the majority of instances only when the complication of local or general peritonitis develops.

In an attempt to determine as nearly as possible the present-day teaching regarding the diagnosis of acute appendicitis, we obtained notes covering the subject in question from the different medical schools in Philadelphia, and in addition reviewed sixteen standard textbooks of surgery and medicine for the symptomatology and signs. Table 2 shows in percentages the number of times the various symptoms and signs were mentioned. One book consulted dealt in diagnosis only from the objective standpoint, which explains why pain is mentioned less than 100 per cent.

TABLE 2.—*Symptomatology of Acute Appendicitis as Mentioned in Standard Textbooks*

| | Per Cent |
|---|---|
| Pain | 93.7 |
| Nausea | 62.5* |
| Vomiting | 87.5† |
| Local tenderness | 100.0 |
| Rigidity | 100.0 |
| Constipation | 68.7† |
| Increased temperature | 87.5† |
| Increased pulse | 56.2† |
| Leukocytosis | 75.0‡ |

* One textbook considered it of secondary importance.
† Two textbooks considered it of secondary importance.
‡ Three textbooks considered it of secondary importance.

This shows that the various signs and symptoms as taught in representative medical schools or published in standard textbooks are still essentially the same as those first enunciated by the late John B. Murphy in 1890, when most of the cases coming to operation were appendical abscesses or ruptured appendixes with general peritonitis. While attempts at differentiating between uncomplicated appendicitis and peritonitis have been made, the differentiation has not been clear cut enough to influence favorably a mortality which is actually increasing. While certain symptoms and signs are stressed, the other symptoms encountered mainly in peritonitis are still taught as occurring in appendicitis, when they are in most instances produced by a peritoneal involvement, and are therefore diagnostic of peritonitis rather than appendicitis itself. Pain, localized tenderness, increased tension or rigidity and a leukocytosis are sufficient to make a diagnosis of appendicitis. It must be borne in mind, however, that all symptoms and signs, with the possible exception of pain, may be absent in a small percentage of cases.

Delay,[1] the first factor in mortality, can be controlled ultimately by two methods:

1. By sending a letter every three months to the staff and physicians referring patients to the hospital, emphasizing the relationship between mortality and delay in operation, and reporting results.

2. By emphasizing the difference between the symptoms and signs of appendicitis and peritonitis to undergraduates of medical schools; those taking extension courses; postgraduates, and members of local and state medical societies.

The administration of laxatives is the second controllable factor.

During the year 1926 at the Samaritan Hospital, 92.3 per cent of all patients who died from a spreading

1. At the Samaritan Hospital during the last seven months, the time between the onset of symptoms and operation has been reduced 28 per cent, with a proportional reduction in mortality.

peritonitis caused by a perforated appendix had had laxatives before admission; 77.4 per cent of those who entered the hospital with a diagnosis of appendicitis and local peritonitis, and 24.3 per cent of patients with a simple appendicitis also received laxatives before admission.

This shows that the public is not aware of the dangers of using laxatives in the presence of abdominal pain. They must be informed, if the mortality is to be greatly reduced. We believe that this can best be accomplished by the family physician.

In April of this year, 600 letters containing 100 stickers and cards were mailed to physicians sending patients to our hospital. On each was printed the following:

> In the presence of abdominal pain, give nothing by mouth. Never give laxatives. Call your family physician. Apply an ice cap or hot water bottle and give an enema. Abdominal pain which persists over a period of six hours is usually serious.

The physicians were requested to affix the stickers to their monthly statements and send the cards to the rest of their clientele.

## SUMMARY

The two greatest factors influencing the mortality of acute appendicitis are delay in operation and the administration of laxatives.

Deaths due to the giving of laxatives, and a certain percentage of those caused by delay, can be prevented by instructing the public through the family physician.

Appendicitis must be diagnosed before peritonitis develops, to decrease the mortality. To this end, teachers and writers of textbooks must emphasize the outstanding features of pain and localized tenderness as sufficient for diagnosis and, when any doubt exists, stress the imperativeness of immediate surgical consultation.

2008 Walnut Street.

## ABSTRACT OF DISCUSSION

DR. STANLEY P. REIMANN, Philadelphia: Dr. Bower has shown concisely, his statistics being valid, that early operation in appendicitis has a great deal to do with mortality. There are other things which could be mentioned; for example, the statement is very frequently made, "Oh, it is only the first attack of appendicitis." I wonder who coined the phrase, "Freeze it out." It sounds so nice. You can roll it around the tongue so well. It has a nice psychologic effect on the patient and his relatives. I think we ought to drop it; we can very well do without it because a first attack of appendicitis may be the last. I see a lot of gangrenous appendixes from children under 10 and also from persons over 60. There seems to be some hesitation in diagnosing acute appendicitis, especially gangrenous, in persons past 60. There is no reason for hesitancy because the disease occurs, and occurs very often. Finally, I might say, from the pathologic point of view, that there is a difference of technic and opinion among surgeons as to what to do with a patient who has a spreading peritonitis from a ruptured appendix. Some surgeons operate immediately. Other surgeons let their patients rest until the process has localized. The pathologist believes that this matter could be standardized better. If surgeons need the pathologist to help them in their goiter work, especially in the diagnosis of carcinoma, it seems to me that the pathologist should be called in to help settle a question like this. He can do the autopsy and help find out what is the best thing to do. It seems, too, from the theoretical point of view, that a patient who does not have the resistance to localize a peritonitis will not have the resistance to stand the insult of operation in spreading peritonitis.

DR. C. T. SOUTHER, Cincinnati: I think that there is no question that the author has mentioned the two prominent features which make the mortality in these cases. I am not one, however, to blame the family physician in these cases. It is not so frequently his fault. The common, handed-down expression in families that castor oil cures belly-ache is probably responsible for a considerable amount of it. The family physician, in a large percentage of cases, does not see these patients until the appendix has ruptured, and it takes a good deal of nerve, even on the part of a surgeon seeing the patient only once, to say "Rush him right off to the hospital," and operate on him. It is all right to say that the family physician should do that, but it is not always easy for the surgeon himself to do it. These patients should have a certain amount of preparation. If rupture and peritonitis have developed and the patient is in a serious condition, a few hours of preparation is more important than an immediate operation. The stomach should be washed out, and a stimulating salt solution and preanesthetic preparation given in very serious cases in order to reduce the mortality. With reference to incisions in these cases, my rule for fifteen years has been as follows: in all children under puberty, gridiron incision; in all females from 16 to 18 years on, a midline incision; in the presence of a tumor, cut over the tumor; in the presence of pregnancy, a gridiron incision. A suction apparatus should always be used in purulent cases to suck out the pus. It should never be sponged out, on account of irritation to the peritoneum. That is one of the greatest factors in reducing the mortality. In all drainage cases, the drain should be left in for six days. Only in general peritonitis cases should there be any mortality at all. It should be remembered that rigidity is not a 100 per cent symptom. In all patients with a postcecal appendix, which has been walled off a long time, there is no rigidity, and I believe that that type of patient is one of the most difficult to operate on, and one of the types that we overlook.

DR. J. H. CLARK, Philadelphia: The last speaker mentioned the fact that postcecal appendicitis might not produce rigidity. Our original work in this subject comprised a review of 278 charts, in which a common feature was a temperature below 100 F. We subdivided the cases according to types of pathologic lesions and encountered about 20 per cent of retrocecal appendixes. Subdividing these under the various signs and symptoms, we could not find any difference between the percentage incidence of rigidity in appendixes that were retrocecal and in appendixes that were free in the peritoneal cavity. We discarded these original 278 cases because of the fact that they might have been peculiar in showing temperatures under 100 F. In compiling the statistics that Dr. Bower gave, we employed only those cases in which the various individual signs and symptoms were specified either positively or negatively in the charts, so that we feel the figures shown represent correctly the true facts. For instance, among a population of 117,135,817, the death rate from appendicitis was 14.8 per hundred thousand. The deaths from appendicitis in 1926 were 17,335; from general peritonitis, 12,655. Laxatives were given to 92.3 per cent of patients; 11,680 probably died as a result. Dr. Bower showed that laxatives were apparently responsible for about 92.3 per cent of deaths in our series of cases of appendicitis complicated by general peritonitis. If this is the case, substituting "possibly" for "probably," we might say that 11,680 patients died in 1926 as the result of the giving of laxatives in the presence of an acute appendicitis.

DR. JOHN O. BOWER, Philadelphia: Surgery of the appendix, so far as mortality is concerned, has reached about the same stage as carcinoma of the breast. From a technical standpoint, little can be done, but a great deal has been done in the reduction of the incidence of carcinoma of the breast, as well as carcinoma in other parts of the body, by a publicity program which is sponsored by all the various societies throughout the country, and it would seem to me that such a program should be instituted by this organization. I purposely did not take up the technic of the operation, because, as Dr. Reimann stated, surgeons do not agree on it, but it seems to me that we should focus our attention on preventive surgery, and in that way reduce the mortality rate.

# GROWTH OF CHILDREN THAT ARE BELOW AVERAGE WEIGHT *

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Do children that are below average weight tend to gain or lose ground when no active steps are taken with specific regard to nutrition? Do these children increase their weight with any regularity? Does the age or sex of these children bear any relation to the gain or loss of weight? This paper is the preliminary one of a series of studies that are being undertaken in an attempt to answer these questions.

## MATERIAL AND METHODS

For the purposes of this study, 1,491 children, 901 girls and 590 boys, were followed through a period of from two to four years. These children were of American stock, living in rural and small town communities. They were weighed on accurate scales, and measured according to the method of Baldwin.[1] The measurements were taken at the same time each year, with the children in stocking feet and ordinary indoor clothing.

The standard used was that of Baldwin and Wood. It is not to be thought that I consider this an absolute standard of nutrition, nor do I consider every child below this standard malnourished. I used this table because it is the one generally used in school work. Nutrition work has not been done with these children.

Opinions vary as to the point at which children are to be considered below proper weight for age and height, the range being from 7 to 12 per cent. Accordingly, these children were placed into three arbitrary groups, group 1 including those above the average, or less than 7 per cent below; group 2 including those between 7 and 12 per cent below, and group 3 including those more than 12 per cent below the average. Of course, these groups are arbitrary and the individual is not considered, but they include those children that are generally recognized as falling into the average weight class, those that are borderline cases, and those generally considered below proper weight for height and age.

## ANALYSIS OF RESULTS

Table 1 shows the cases grouped according to age, sex and weight and the time elapsing since the first examination. The two year group includes those children that have had three consecutive examinations, and the three year group includes those who have had four examinations.

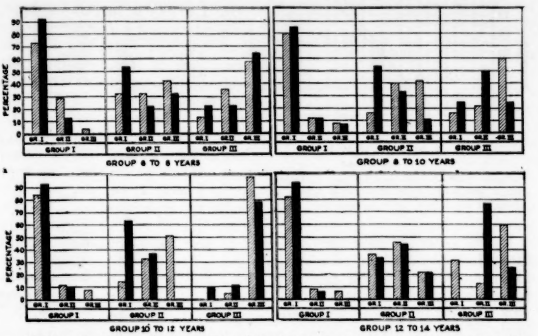


Chart 1.—Percentage distribution of children in groups 1, 2 and 3 after two years. The subdivisions marked group 1, group 2 and so on show the distribution of the children that started in the respective groups; solid areas indicate boys; shaded areas, girls.

TABLE 1.—*Distribution After a Period of Two and Three Years of Children That Started in Groups 1, 2 and 3* *

| Age in Years | Time Since First Examination | Sex | Number of Cases | Percentage of Group 1 on First Examination | | | Number of Cases | Percentage of Group 2 on First Examination | | | Number of Cases | Percentage of Group 3 on First Examination | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 to 8 | 2 yrs. | M | 72 | 90.2 | 9.8 | 0.0 | 10 | 50.0 | 20.0 | 30.0 | 5 | 20.0 | 20.0 | 60.0 |
| 6 to 8 | 2 yrs. | F | 84 | 70.3 | 28.6 | 1.1 | 20 | 30.0 | 30.0 | 40.0 | 9 | 11.1 | 33.4 | 55.5 |
| 6 to 8 | 3 yrs. | M | 55 | 89.1 | 10.9 | 0.0 | 4 | 50.0 | 0.0 | 50.0 | 4 | 0.0 | 50.0 | 50.0 |
| 6 to 8 | 3 yrs. | F | 62 | 70.9 | 26.7 | 2.4 | 13 | 38.4 | 7.8 | 53.8 | 9 | 33.4 | 22.2 | 44.4 |
| 8 to 10 | 2 yrs. | M | 67 | 85.1 | 10.4 | 4.5 | 9 | 55.5 | 33.3 | 11.2 | 4 | 25.0 | 50.0 | 25.0 |
| 8 to 10 | 2 yrs. | F | 95 | 80.0 | 11.5 | 8.5 | 22 | 18.0 | 41.0 | 41.0 | 22 | 18.1 | 22.0 | 59.1 |
| 8 to 10 | 3 yrs. | M | 52 | 89.6 | 7.7 | 2.7 | 8 | 37.5 | 50.0 | 12.5 | .. | .... | .... | .... |
| 8 to 10 | 3 yrs. | F | 69 | 73.9 | 18.8 | 7.3 | 17 | 17.6 | 47.0 | 35.4 | 17 | 23.5 | 17.6 | 58.9 |
| 10 to 12 | 2 yrs. | M | 66 | 89.4 | 10.6 | 0.0 | 8 | 62.5 | 37.5 | 0.0 | 9 | 11.1 | 11.1 | 77.8 |
| 10 to 12 | 2 yrs. | F | 47 | 82.9 | 10.6 | 6.5 | 12 | 16.6 | 33.2 | 50.2 | 18 | 0.0 | 5.5 | 94.5 |
| 10 to 12 | 3 yrs. | M | 51 | 94.1 | 5.9 | 0.0 | 6 | 16.6 | 16.7 | 66.7 | 8 | 12.5 | 37.5 | 50.0 |
| 10 to 12 | 3 yrs. | F | 38 | 73.7 | 21.0 | 5.3 | 9 | 22.2 | 22.3 | 55.5 | 15 | 6.6 | 13.3 | 80.1 |
| 12 to 14 | 2 yrs. | M | 41 | 95.1 | 4.9 | 0.0 | 9 | 33.3 | 44.5 | 22.2 | 4 | 0.0 | 75.0 | 25.0 |
| 12 to 14 | 2 yrs. | F | 64 | 82.8 | 9.3 | 7.9 | 20 | 35.0 | 45.0 | 20.0 | 24 | 29.1 | 12.5 | 58.4 |
| 12 to 14 | 3 yrs. | M | 27 | 92.6 | 7.4 | 0.0 | 6 | 33.3 | 50.0 | 16.7 | 3 | 0.0 | 33.3 | 66.7 |
| 12 to 14 | 3 yrs. | F | 47 | 82.9 | 12.7 | 4.4 | 9 | 44.4 | 22.2 | 33.4 | 15 | 13.3 | 53.4 | 33.3 |
| 14 to 15 | 2 yrs. | M | 29 | 100.0 | 0.0 | 0.0 | 8 | 37.5 | 25.0 | 37.5 | 7 | 28.5 | 28.5 | 43.0 |
| 14 to 15 | 2 yrs. | F | 67 | 91.0 | 7.4 | 1.6 | 27 | 33.3 | 33.3 | 33.4 | 18 | 11.1 | 22.3 | 66.6 |
| 14 to 15 | 3 yrs. | M | 13 | 100.0 | 0.0 | 0.0 | 6 | 16.6 | 16.7 | 66.7 | .. | .... | .... | .... |
| 14 to 15 | 3 yrs. | F | 17 | 94.1 | 5.9 | 0.0 | 7 | 56.1 | 42.9 | 0.0 | 9 | 11.1 | 11.1 | 77.8 |

* The age in years, the sex and the number of cases are also shown.

A. *Six to Eight Years of Age.*—At the end of two years 70.3 per cent of the girls that were in group 1 on the first examination remained in that group; 28.6 per cent had dropped to group 2, and 1.1 per cent had gone to group 3. At the end of three years 70.9 per cent remained in group 1, and 26.7 and 2.4 per cent had dropped to groups 2 and 3, respectively.

Of the girls starting in group 2, 30 per cent remained in group 2 after two years; 40 per cent had dropped to group 3 and 30 per cent had passed to group 1. After three years, group 2 retained 7.8 per cent of those starting; 38.4 per cent were in group 1, and 53.8 per cent had dropped to group 3.

After two years 55.5 per cent, and after three years 44.4 per cent, of the girls of this age that started in group 3 remained there. In two years, 11.1 per cent had advanced to group 2. After three years, group 1 held 33.4 per cent and group 2 22.2 per cent.

At the end of two years, 90.2 per cent of the boys starting in group 1 remained there, and after three years this percentage was 89.1. Not one boy of this age had dropped to group 3, 9.8 and 10.9 per cent being in group 2 after two and three years, respectively.

Twenty per cent of the boys of this age starting in group 2 remained in group 2 after two years; 50 per cent had advanced to group 1, and 30 per cent had dropped to group 3. The number of boys that started in group 3 is too small to enable one to draw conclusions, but it can be seen that after three years 50 per cent of them are still in group 3 and 50 per cent in group 2; none of them have reached average weight.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Baldwin, B. T.: The Use and Abuse of Weight-Height-Age Tables as Indexes of Health and Nutrition, J. A. M. A. **82**: 1 (Jan. 5) 1924.

B. *Eight to Ten Years.*—The description of the 6 to 8 years age group is sufficient to explain the arrangement of table 1. In the 8 to 10 year class, it can be seen that after three years 89.6 per cent of the boys and 73.9 per cent of the girls starting in group 1 remained there; and, further, that 58.9 per cent of the girls starting in group 3 remained there, and 23.5 per cent had passed to group 1.

C. *Ten to Twelve Years.*—Here the same tendency is found. Those starting in group 1 tend very strongly to remain there, and those starting in group 3 to remain in that group.

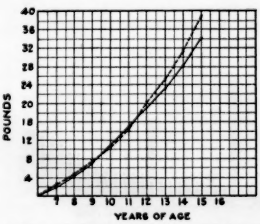


Chart 2.—Gain in pounds per inch increase in height for boys and girls in group 1: solid line, boys; broken line, girls.

D. *Twelve to Fourteen and Fourteen to Fifteen Years of Age.*—Here the same tendencies are repeated. Those in group 1 tenaciously cling there and most of those in group 3 seem to be unable to climb into group 1.

It will be noted that the boys tend to lose less than the girls, more of them remaining in group 1 and fewer in group 3 than is the case with the girls. Chart 1 represents graphically the results listed in table 1. It will be seen that those who start in group 2 fluctuate more widely between groups 1 and 3 than those who start in either group 1 or 3. This is to be expected because group 2 includes borderline cases and has a much shorter range than either of the other groups.

TABLE 2.—*Annual Increase in Pounds per Inch in Standing Height for Girls and Boys of the Three Weight Groups*

| Group | Sex | 6-7 | 7-8 | 8-9 | 9-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | M | 2.1 | 2.4 | 2.9 | 3.8 | 4.2 | 3.7 | 4.4 | 4.9 | 6.2 |
| 1..... | F | 2.2 | 2.4 | 2.9 | 3.4 | 3.9 | 5.6 | 5.2 | 6.1 | 6.9 |
| 2..... | M | 2.7 | 2.9 | 4.1 | 3.9 | 3.3 | 4.7 | 5.7 | 4.6 | 5.2 |
| 2..... | F | 1.8 | 3.1 | 3.3 | 2.8 | 3.3 | 4.4 | 4.1 | 7.9 | 6.8 |
| 3..... | M | 3.8 | 3.3 | 3.1 | 2.9 | 3.1 | 3.6 | 4.5 | 6.3 | 6.1 |
| 3..... | F | 3.0 | 3.6 | 1.9 | 3.0 | 3.6 | 3.9 | 5.1 | 5.5 | 7.0 |

Table 2 shows the annual gain in pounds per inch increase in standing height for the three groups. It may be noted that the boys in group 3 gain more pounds per inch increase in height than do those boys in group 1 from 6 to 9 years of age. From 9 to 12 the boys in group 3 gain slightly less than those in group 1, and from 12 to 15 the gain is approximately the same, except that from 12 to 13 years the boys in group 3 exceed those in group 1 by 1.4 pounds; but this difference is undoubtedly due to chance and the fact that the group was small. The boys in group 2 exceed those in group 1 up to 10 years of age, and from 10 to 12 gain less than those in group 3. From 12 to 15 years the gain is about the same in group 1 and group 2, with a slight advantage in favor of group 1.

The girls in group 3 gain more than those in groups 1 and 2 for the age from 6 to 8. From 8 to 14 years of age the gain is slightly less in group 3 than in group 1, but the difference is not marked.

It appears from table 2 that in the children forming the basis of this study, the gain in pounds per inch increase in height is not markedly influenced by the percentage below weight.

Charts 2, 3 and 4 show the growth curves for the boys and girls. In group 1 the gain is practically the same for the two sexes up to 12 years of age. After 12 years the girls exceed the boys in weight, which condition obtains in all height-age-weight tables. In group 2 the girls lag behind the boys until 15 years of age. In group 3 also the girls lag behind the boys, but not to such a marked degree as in group 2.

TABLE 3.—*Annual Increment in Weight for Boys and Girls of the Three Weight Groups*

| | Boys | | | Girls | | |
|---|---|---|---|---|---|---|
| Age | Group 1 | Group 2 | Group 3 | Group 1 | Group 2 | Group 3 |
| 6- 7..... | 2.1 | 2.7 | 3.8 | 2.2 | 1.8 | 3.0 |
| 7- 8..... | 4.5 | 5.6 | 7.1 | 4.6 | 4.9 | 6.6 |
| 8- 9..... | 7.4 | 9.7 | 10.2 | 7.5 | 8.2 | 8.5 |
| 9-10..... | 11.2 | 13.6 | 13.1 | 10.9 | 11.0 | 11.5 |
| 10-11..... | 15.4 | 16.9 | 16.2 | 14.8 | 14.3 | 15.1 |
| 11-12..... | 19.1 | 21.6 | 19.8 | 20.4 | 18.7 | 19.0 |
| 12-13..... | 23.5 | 27.3 | 24.3 | 25.7 | 22.8 | 24.1 |
| 13-14..... | 28.4 | 31.9 | 30.6 | 31.8 | 30.7 | 29.6 |
| 14-15..... | 34.6 | 37.1 | 36.7 | 38.7 | 37.5 | 36.6 |

TABLE 4.—*Distribution by Age and Sex of Children Gaining and Losing Weight in the Three Groups**

| | 6 to 8 | | 8 to 10 | | 10 to 12 | | 12 to 14 | | 14 to 15 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | + | − | + | − | + | − | + | − | + | − | |
| Group 1..... | 46 | 49 | 78 | 57 | 96 | 49 | 60 | 50 | 22 | 7 | Boys |
| Group 1..... | 36 | 28 | 64 | 54 | 80 | 52 | 45 | 36 | 18 | 15 | Girls |
| Group 2..... | 14 | 3 | 18 | 7 | 17 | 8 | 17 | 5 | 5 | 2 | Boys |
| Group 2..... | 9 | 11 | 29 | 10 | 22 | 20 | 15 | 9 | 5 | 5 | Girls |
| Group 3..... | 7 | 3 | 5 | 5 | 13 | 6 | 15 | 3 | 8 | 1 | Boys |
| Group 3..... | 13 | 3 | 15 | 9 | 24 | 24 | 22 | 2) | 14 | 4 | Girls |

* A plus sign at the top of a column indicates those gaining weight; a minus sign indicates those losing weight.

Table 3 shows the annual increment in pounds per inch increase in height for the three groups. It is seen that those children that are below weight have growth curves as regular as those children that are of average weight. Even when the groups are divided into those losing weight and those gaining weight, the growth curves for the groups are practically the same.

Table 4 shows the number of children gaining weight and those losing weight. In group 1 there are more boys from 6 to 8 years losing weight than there are gaining, but the difference is well within the normal limits of deviation. In all the other cases except the 6 to 8 year old girls, there are more children gaining than there are losing, and the difference is more marked in groups 2 and 3 than it is in group 1. It will also be noticed that in most cases the percentage of girls losing weight is greater than the percentage of boys losing weight. This merely emphasizes that which has already been noted in table 1; namely, that the girls tend to lose weight more than do boys and that fewer of them pass from the lower weight group into the higher groups.

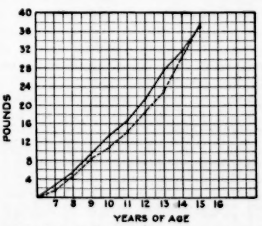


Chart 3.—Gain in pounds per inch increase in height for boys and girls in group 2: solid line, boys; broken line, girls.

## SUMMARY AND CONCLUSIONS

A group of 1,491 children, native born Americans living in a rural community in Tennessee, was studied with reference to gain and loss of weight as judged by

the Baldwin-Wood tables. No nutrition work was carried on among these children, although during the time a general county-wide health program was being carried on. The children were grouped into three classes, those equal to, above or less than 7 per cent below the average constituting group 1. Group 2 was composed of those from 7 to 12 per cent below the average weight, and group 3 of those more than 12 per cent below the average.

The conclusion with reference to the particular group of children studied may be briefly stated thus:

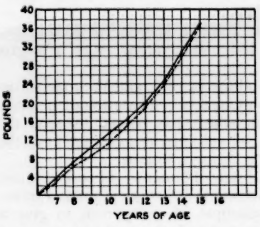


Chart 4.—Gain in pounds per inch increase in height for boys and girls in group 3: solid line, boys; broken line, girls.

1. Children that are above or equal to the average weight tend to remain in that group, and those that are below the average tend to remain below the average. The greater the percentage below the average weight, the greater is the tendency to remain below average.

2. Girls are more prone to drop from higher into lower groups and tend to remain in lower groups more than do boys.

3. Children that are below average weight gain as many pounds per inch increase in height as do children of average weight. The weight curve is as regular in those children below average weight as it is in children of average weight.

4. Girls tend to lose weight more than do boys.

5. Girls that are below average weight do not gain as regularly as do boys.

## ABSTRACT OF DISCUSSION

DR. HAVEN EMERSON, New York: I think the lesson that is so strongly brought out in this paper is that it is of much less significance that a child at any age of either sex is below weight than that that child is not gaining steadily. The figures are quite similar to the figures which Dr. Elton Littell of Yonkers has obtained in competitive school work, in which he shows the tendency of children, when they are properly guided in their hygiene, to pass from the low or subnormal weight up into the normal weight class, if given reasonable hygienic conditions. If they are not gaining from month to month, it is more serious than that they should be gaining at a level a little lower than the theoretical ideal. The other lesson that I get from this paper is that each child must be treated as an individual, both in estimating the nutritional level and in handling the case as a problem in growth. From the observations of Schroeder and Gephart of New York, and from other observations that we are all familiar with, it has been found that the determination of the nutrition by the standard ratios of weight for height and age by the Wood, Baldwin or Dunfermline scales is much less reliable than the estimate of the state of nutrition by the clinician who examines the child. There is no escape in public health work or in private medical practice from the physician's responsibility for searching out the primary and contributing causes for each child's undernourishment, and for any delay or arrest in its progress of growth. It takes the finest diagnostic skill and supervision of health habits to see that any child gains steadily, and constantly approaches the normal weight for its race stock, sex, age and height.

DR. HENRY D. CHADWICK, Westfield, Mass: I should like to report an experiment bearing on the subject of this paper. The Boston public schools are carrying on some health classes for children with malnutrition, hilum tuberculosis or suggestive glandular tuberculosis. In several schools this group of children are given a lunch and thirty minutes' rest on a cot bed at 10 a. m. At noon a hot lunch is served and the children have another half hour rest in bed. The children do not go home until the end of the afternoon session. It was found that the children in these classes gained consistently each week during the year except at the Christmas and Easter vacations. During these two vacation periods, each child lost an average of three-fourths pound. When they did not have the rest periods and lunches with their regular school routine, they not only did not gain but actually lost weight. In my experience, underweight children usually remain in that condition until their habits of life are employed. At home they do not get the rest they require for normal growth or an intelligent supervision of their diet. Desirable changes can be made in their habits by organizing health classes in the schools and making use of vacant spaces for cot beds, so that the children may get the rest that they need. At least one suitable meal a day can be supplied without very much additional cost. This can be done with very little interruption of the school routine, as the children leave their own class rooms only for the rest periods.

DR. SENECA EGBERT, Philadelphia: At the Massachusetts Institute of Technology some time ago, it was found that the question of the underweight of students depended not so much on the diet of the students as on their social and working habits, especially in regard to lack of sleep and dissipation. I do not mean by that immoral dissipation, but dissipation of vital energy and the like in a way that wasn't altogether normal or hygienic. As I listened to the paper it seemed to me that this was a factor that should be taken into consideration in addition to the questions of nutrition, diet and the supervision of diet. Every one of us knows that the social habits of a great many children are not controlled or supervised by their parents, much less by their teachers. That is just the point that Dr. Chadwick made. Excitement, if I may use that term, in the form of too much party-going, too much dancing and too much fun of one kind or another upsets the children's regimen; they do not get normal rest and recuperation, and so do not make the proper gain in weight.

DR. FRANK L. ROBERTS, Trenton, Tenn.: With regard to the nutrition of these children, no special work was done; in fact, this was purposely avoided. We found that these underweight children tended to remain in their own weight group and gained weight regularly. The general impression that I received as a result of this study was that the individual is the important factor, as Dr. Emerson pointed out. It is nearly impossible to study children *en masse*. The point I am trying to drive home by this series of studies is that clinical judgment is the best index of the malnutrition of a child. The fact that food and rest increase a child's weight is no sign that the child we below his proper weight—one can make a fat child gain. I agree with Dr. Chadwick that tuberculosis should be excluded in these underweight children. We did not do this—we included all cases examined regardless of defects—but there were no known cases of tuberculosis included.

**Cooperation Between Physician and Social Workers.**—It is obvious to every well trained physician and social worker that the connection between poverty and disease is so close that there must be cooperation between the health workers and the family welfare workers. Bringing together these two distinct groups in the health center results in time saving and more effective work. It must be remembered that the modern physician on the one hand is being trained for the field of preventive as well as curative medicine. On the other hand, campaigns are being waged for the education of the public with regard to the value of prophylaxis, routine medical examinations and other available services for the promotion of health and longevity. The private physician is the most important asset in public health work; therefore he must be properly regarded as a very important factor in the success of a local health center.—Wilinsky, C. F.: *Am. J. Pub. Health* **17**:679 (July) 1927.

# CARCINOID TUMORS OF THE SMALL INTESTINE

## REPORT OF A CASE COMPLICATED BY INTUSSUSCEPTION IN AN ADULT *

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AND
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The following is an abstract of the history of the case which is the basis for this report.

A colored man, aged 37, was admitted to the Mercy Hospital in the evening of Oct. 9, 1926. He had been sick about twenty-four hours and complained of severe abdominal crampy pain, with nausea, vomiting and constipation. His general condition was good. There was some distention of the abdomen with tenderness in the right lower quadrant. There was no fever and no increase in pulse rate. The blood count showed 13,300 leukocytes and 83 per cent of polymorphonuclear cells. The Wassermann reaction was strongly positive. No masses were felt in the abdomen and there were no particular points of tenderness. An enema brought relief of his symptoms and he had a quiet night. The next day about noon the crampy pain returned and again was relieved by an enema. The symptoms recurred daily, and were relieved by the same treatment. On the morning of October 13, four and one-half days after the onset of his illness, he had severe cramps with hiccup. He vomited bile-stained fluid and complained of a desire for defecation without ability to pass anything from the rectum. There was considerable tenderness in the lower right quadrant of the abdomen with muscle spasm and rigidity. No masses could be felt. An indistinct peristaltic wave could be seen. An enema was not effectual. A plain roentgen-ray plate showed distended and ladder-like coils of small bowel, with a colon dilated down to the lower end of the sigmoid.

Immediate operation was advised for the relief of intestinal obstruction of unknown origin.

At operation we found a distended cecum with the appendix free and uninjured. There was an invagination of the ileum through the ileocecal valve, but there was no turning in of the cecum. The valve was in its normal position. Through the wall of the cecum a mass of intestine could be felt filling the cavity of this portion of the large bowel and extending into the ascending colon. Just outside the ileocecal valve another intussusception was found in the ileum. This one was short, about an inch long, and very tight, and the invaginated portion was dark purple. An attempt at reduction by manipulation failed. Similarly, it was impossible to withdraw or milk out the invaginated ileum from the cecum. When this manipulation was attempted, a good deal of blood-stained fluid was expressed through the neck of the intussusception, but the position of the bowel remained unchanged.

Resection of the involved ileum and the cecum was done. The proximal end of the ileum was united to the side of the closed ascending colon by means of a button. The divided mesentery was sutured, and the outer leaf of peritoneum sewed over the raw area at the bottom and other side of the wound. Cigaret drains were placed in the fossa with omentum between them and the intestinal anastomosis, and the abdomen was closed. The patient developed a fecal fistula which closed spontaneously, and he was discharged in good condition with his wound healed, thirty-five days after operation. The button passed from the anus on the fourteenth day.

The specimen showed two intussusceptions. The first was a short one in the ileum about 60 cm. from the valve. This invagination was very tight, the bowel was almost gangrenous, and at the apex was found a small button-like tumor, under the mucous membrane on the antimesenteric side of the bowel. The large intussusception also was very tight and could not be reduced in the specimen. The neck was the ileocecal valve. The appendix was entirely free. The cecum was filled with coiled up invaginated ileum. The apex of the intussuscipiens was directed toward the inner wall of the large bowel; its lumen was slitlike but appeared patulous. The invaginated ileum when uncoiled and straightened out measured 55 cm. in length. No tumor or other irregularity could be found in its wall.

This is the only case of intussusception occurring in a colored adult recorded in Mercy Hospital. About 10 per cent of the beds in the hospital are set aside for colored patients. It is interesting to note that in the first American case, in which operation was successfully performed by Dr. John R. Wilson [1] of Rutherford County, Tenn., in 1831, the patient was a negro, aged 20.

Intussusception in adults is rare, and multiple intussusception is rare at any age; a combination of primary enteric intussusception which has passed through the ileocecal valve with a second enteric invagination at the seat of a tumor of the ileum is unique.

Beginning with John Hunter's introsusception, Rokitansky's intussusception, intussusceptum and intussuscipiens, and the attempts of many men to give a name to each form encountered, the study of intestinal invagination has been confused by a complicated terminology. Perrin and Lindsay [2] use a relatively simple classification, and praise those earlier writers who were content with recording the conditions without giving it a name, "an admirable example which has, alas, not been widely followed."

In our case the large intussusception was an ileocolic one; the apex of the invagination was 55 cm. above the valve, and the valve, the appendix and the head of the cecum were entirely free of the process. The clinical course and pathologic changes leave some doubt as to the method of formation of this portion of the lesion. It may have developed, as outlined above, by the progress of an ileo-ileac invagination extending downward at the expense of the ileum, and passing through the valve, which later on would have followed with the appendix and cecum into the colon. Or the method of growth may have been that described by Leichtenstern [3] and by Barnard.[4] Here the ileocecal valve remains fixed in its position while more and more ileum is prolapsed through its orifice into the cecum, the growth taking place entirely at the expense of the entering layer. In the latter type the apex of the intussusception changes with each increase of the invagination and does not show as a typical edematous segment of bowel. Reduction should be easy with this type.

The severity of the symptoms of an intussusception is proportionate to the degree of obstruction and strangulation produced by the invagination. The symptoms are less severe in the enteric type than in those which involve the ileocecal valve. Prolapse of the ileum into the cecum with a changing apex of the intussusceptum is not likely to lead to complete occlusion of the intestinal lumen. In our case the symptoms of partial obstruction noted during the first four days were probably due to the advancing ileac invagination as it entered the cecum, and the acute symptoms noted a few hours before operation were due to complete occlusion by the second intussusception at the site of the tumor,

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Wilson, J. R.: Am. J. M. Sc. **18**: 262, 1836.
2. Perrin, W. S., and Lindsay, E. C.: Brit. J. Surg. **9**: 46 (July) 1921.
3. Leichtenstern, in Nothnagel's Practice, Diseases of the Intestines and Peritoneum, American edition, 1904, p. 517.
4. Barnard, Sherrén and Bashford: Contributions to Abdominal Surgery, New York, Longmans, Green & Co., 1910.

either in itself or in attempting to pass through the valve. Some part at least of the severe symptoms was the result of disturbance of the circulation of the invaginated bowel.

A typical edematous apex was not noted when the specimen was examined, but reduction was not possible at the time of operation or in the laboratory. Neither the appendix nor the cecum was involved in the process. With these contradictions we cannot decide whether the condition was an ileocolic intussusception arrested in its course just as it reached the valve, or a prolapse of the ileum through the valve with growth at the expense of the small intestine alone. In the second intussusception there is no doubt that the tumor was the exciting cause.

Most intussusceptions occurring in adults are associated with tumors or ulcerations of the intestinal wall. The great majority of the tumors are pedunculated or sessile adenomas which project into the lumen of the bowel. Malignant tumors and active inflammations by infiltration of the wall produce a stiffening of the intestine which prevents rather than causes invagination.

In our case the tumor was a flat, button-like mass about 2 cm. in diameter, covered by intact mucous membrane. It was situated on the antimesenteric side of the bowel and there was no projection into the lumen. The tumor was not encapsulated but was circumscribed. It invaded the muscularis, but it did not pass through this layer to the serosa. It was yellowish white, waxy, and firm in consistency, and it cut without grating.

### MICROSCOPIC STUDY OF THE TUMOR

The nests of tumor cells did not impinge on the crypts at any point. Apparently, they were limited by the muscularis mucosae, in which some nests were embedded. The submucosa and both muscular layers were extensively infiltrated.

The cell nests varied in size, but in none could any intercellular substance be demonstrated. The blood vessels were confined to the stroma. The nests for the most part were composed of solid cords of cells, although in some of the larger ones an occasional pseudoglandular arrangement was noted. The lumen thus formed contained a pink staining material. In the central necrosis of some of the larger nests, the appearance of lipoid deposit was noted. The cells at the periphery of many of the nests were low columnar in type, while the central ones were oval or round. The nuclei were large and rich in chromatin, and nucleoli were not infrequent.

The cytoplasm was moderate in amount and in some cells contained reddish brown granules. Many cells contained lipoid droplets. The characteristic columnar cells of adenocarcinoma of the intestine were not found anywhere in the tumor. When stained by Hasegawa's method, the argentaffin granules were beautifully brought out. The cells at the periphery showed the black granules better than those in the center. The latter cells showed many vacuoles which represented the lipoids present. As a control, the Hasegawa method was applied to sections of an adenocarcinoma of the cecum of proved malignancy with metastasis to lymph glands and the liver. No argentaffin granules were present in the cells of the adenocarcinoma.

The growth belonged to the group of carcinoid or argentaffin tumors.[5] These tumors originate in certain chromaffin cells found at the base of Lieberkuehn's crypts,[6] which in their process of differentiation acquire the argentaffin characteristic.

Carcinoids, therefore, are tumors of the chromaffin system, the granules of the cells having the ability to reduce an ammoniacal solution of silver.[7] Although these tumors infiltrate the muscular layer of the intestinal wall, the growths usually remain localized and in very few instances have been known to give rise to metastases. Extension into the fat of the mesentery or on to the serosa is not an indication of malignancy.

Stewart and Taylor [8] in a careful search of the literature, made in 1926, were able to collect only eighteen cases of carcinoid tumors with metastasis, from the many hundred cases of these tumors on record. Dukes and Lockhart-Mummery [9] add another case. In some cases the secondary deposits reproduced more or less faithfully the structure of the ordinary primary growth; in others there were evidences both in the primary growth and in the metastases that the cells had assumed more malignant characters, among which is noted a diminution in the amount of argentaffin granulation.

For practical purposes the tumors may be looked on as benign growths, and their treatment limited to local excision. When infiltration of the mesentery or peritoneum has occurred, or, when there is apparent metastasis to neighboring lymph glands, the operation must be extended to include the removal of all the involved tissue.

While this tumor was being studied in the laboratory, two argentaffin tumors of the appendix were sent to one of us (S. McC.) by Dr. H. L. Tolson of Cumberland. The patients were both in the second decade of life and were operated on for symptoms of chronic appendicitis. There was no suspicion of malignancy, and as far as is known there was no other pathologic condition present in the abdomen.

### REPORT OF CASES

CASE 1.—A nodule 4 mm. in diameter was present in the wall of the appendix and was visible through the serosa. Microscopic examination showed the mucosa intact, but the submucous and both layers of the muscularis contained nests of cells of the same general appearance as those described in the tumor of the ileum. The stroma was less abundant and the cell nests were smaller. Pseudolumina were less frequent, and the lipoids were not as abundant. The peripheral cells in practically all the large cell nests were basal in type; the other cells were oval or round. The structure of both the nuclei and cytoplasm of the individual cells corresponded to that described in the tumor of the ileum. The argentaffin character of these cells was beautifully demonstrated by the Hasagawa technic.

CASE 2.—Microscopic study showed that there was no protrusion of the tumor on either the mucosa or serosa. The nests of tumor cells were present in the submucosa and in both layers of the muscular tissue. Aside from the presence of more lipoid substance than in the other appendix, there was no difference between the sections, the cells both in shape and in character of nuclei and cytoplasm being nearly identical. The argentaffin character of the cells was shown distinctly by the Hasagawa stain.

### COMMENT

It is difficult if not impossible to disregard the striking morphologic resemblance which the cells of these tumors bear to those of the basal cell epithelioma.

5. Forbus, W. D.: Bull. Johns Hopkins Hosp. **37**: 130 (Aug.) 1925.

6. Masson, P.: Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 956 (June 23) 1922.

7. Lewis, Dean: Lab. & Clin. Med. **11**: 1 (March) 1926.

8. Stewart, M. J., and Taylor, A. L.: J. Path. & Bact. **29**: 136 (Jan.) 1926.

9. Dukes, C., and Lockhart-Mummery, P.: J. Path. & Bact. **29**: 308 (July) 1926.

Relying on this feature alone, one would be justified in so classing them. It is when the tissue is stained by the Hasagawa method that the similarity ceases, for we were unable to obtain a reduction of the alkaline silver solution in cases of basal cell epithelioma from other locations. The argentaffin character of the cells in the tumor of the ileum, as well as the two growths of the appendix, is clearly demonstrated.

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## CARCINOMATOUS DEGENERATION OF RECTAL ADENOMAS

REPORT OF SEVEN CASES *

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Adenomas are the commonest variety of benign intestinal tumors and may occur in any segment of the intestinal tract; chiefly, however, they are found in the rectum and then, in the order of frequency, in the ileum, colon, ileocecal valve and duodenum.

Dewis [1] reported 219 benign intestinal tumors, 101 of which were in the rectum. Of the latter, eighty-one were adenomas; ten, myomas; six, lipomas; two, fibromas, and two angiomas.

In form these tumors are either sessile or pedunculated. Adenomas develop as the solitary polyp, multiple polyposis or villous tumor. They have a common origin from the mucous membrane and are of the same histologic structure; namely, glandular, with connective tissue intermingled.

In the majority of instances, a single or a few adenomas occur most frequently in children from 3 to 10 years of age, although they are not unusual in adults.

In my series of thirty-five cases in children and young adults, no single growth has been larger than an English walnut.

On the other hand, in adults the tumors may reach an enormous size, completely filling the bowel lumen.

When the solitary type assumes the polypoid form, the attenuated pedicle frequently breaks and the tumor is cast off, spontaneous cure resulting. Adenomas may undergo hyaline, myxomatous or cystic degeneration.

In adults, single adenomas are usually sessile or have only short pedicles. Bleeding and a sense of weight in the pelvis are the characteristic symptoms. Unless thoroughly removed at the base, they are likely to recur and are prone to malignant degeneration.

Villous tumor is a rare neoplasm, usually single and occurring in adults. It arises from the mucosa and is attached by a broad base, plaquelike rather than spherical. Grossly, its surface is covered with soft, wavy papillae which bleed freely on contact. When palpable in the rectum, it imparts a soft, velvety feel. Ordinarily the size of an egg, it may become fist size (Cripps [2]), or fetal head size (Allingham), filling the rectum; it then tends to drag down the mucous membrane as a pedicle or to become the apex of an intussusception. The usual site is the rectum or pelvic colon.

Because of the pronounced tendency of villous tumor to recurrence and to malignant change, thorough extirpation of the base should always be practiced.

### MULTIPLE POLYPOSIS

The pathologic changes, course and treatment of multiple polyposis differ in so many important respects from those of simple adenomas that the condition demands separate consideration as a distinct disease entity. It is a comparatively rare condition but is the most important and serious type of innocent neoplasm of the intestine.

The usual site of these neoplasms is the distal colon and rectum. Yet the tumors may literally stud the mucosa from the ileocecal valve to the anus, becoming less numerous in the higher levels. In a review of thirty-four cases, Thorebecke found the rectum involved in twenty-three; the colon and rectum in five, and the colon alone in six.

In Doering's [3] compilation of fifty cases, children were affected more frequently than adults.

The earliest instances that I have seen were in boys of 5 and 7 years. Approximately two thirds of the cases occurred in males.

In the early stages of multiple adenomas there is a diffuse, marked hypertrophy of the epithelial lining. [4] This accords with the view of Verse that irritation (bacterial, chemical or mechanical) is a predisposing factor.

Clinical experience justifies the opinion that the greater number of these cases are inflammatory in origin. The theory of a congenital defect or a preternatural sensibility of the tissues, furnishes a basis for the disseminated adolescent type of multiple polyposis, without demonstrable gross evidence of associated irritation. A familial tendency, observed in several instances, favors this view.

In 1839, Rokitansky interpreted the adenomas developing at the margin of healed ulcers as islets of mucosa caught by the cicatricial tissue in the process of repair.

The several polypi, noted by Mummery and others, in the immediate vicinity of old intestinal stricture and hyperplastic tuberculosis are most probably secondary to irritation of the lesion with which they are associated.

The tumors are small and mostly sessile at first, but in their later development many, in some cases the majority, become pedunculated. In diameter they vary from 0.5 cm. to 2 or 3 cm. The intervening mucosa usually shows chronic inflammatory changes.

As a result of traumatism by the feces and hyperperistalsis, ulceration of the tumors is frequent.

The two essential elements comprising the adenomas are the fibrous tissue stalk, derived from and continuous with the submucous connective tissue, and the epithelium covering this stroma, which is continuous over the pedicle with the normal epithelium lining the intestinal wall. Both the epithelium and the stroma participate in the diffuse neoplastic process.

The course of the disease is slow but progressive, usually over a period of from one to five or more years.

As a result of dysenteriform bowel movements, multiple adenomas per se may have a malignant constitutional effect, but the chief danger in their neglect or improper treatment is their proneness to malignant degeneration. In fifty cases reviewed by Doering, and eleven by Soper, adenocarcinoma was present in twenty-six (43 per cent). Tuttle [5] reported eight cases, five of which showed malignant growth.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 18, 1927.

1. Dewis, J. W.: Boston M. & S. J. **155**: Oct. 18, 1906.
2. Cripps, Harrison: Diseases of the Rectum and Anus, London, J. & A. Churchill, 1907.
3. Doering, H.: Arch. f. klin. Chir. **83**: 1907.
4. Ewing, James: Neoplastic Diseases, Philadelphia, W. B. Saunders Company, 1922.
5. Tuttle, J. P.: Tr. Am. Proct. Soc., 1909.

Another series of recorded cases showed a malignant change in approximately 50 per cent.

Accumulating clinical experience tends to show that practically all cases of multiple polyposis eventually undergo malignant degeneration when allowed to take their natural course.

Both clinically and by histologic study of the specimens, the transition from simple inflammatory hyperplasia to tumors pathologically cancerous can be traced through the stages of inflammation, gland cell hypertrophy and hyperplasia, and adenoma to definite adenocarcinoma. It is a logical inference that continuance of the irritative factors that induce the adenomas stimulate epithelial hyperplasia until it breaks through normal bounds and becomes malignant. Malignant transition may occur in widely separated tumors. For this reason negative observations in one or more excised growths do not exclude the possibility of others in the same case being malignant.

Metastasis to the abdominal lymphatics, and the liver, kidney and spleen has been noted.

## DIAGNOSIS

The diagnosis of intestinal polyposis is based on the history, frequently of a colitis and a discharge of blood, and on the physical conditions present.

Digital palpation will usually detect one or more tumors in the rectum, but proctoscopy is essential when they are situated at a higher level. In no case should inspection be omitted to determine the number, size, character and distribution of the growths. In cases of segmental or disseminated polyposis of the colon, the roentgen rays often show a striking and characteristic picture. Roentgenographic examination is also invaluable in demonstrating associated lesions, such as chronic ulcerative colitis, multiple diverticulitis and obstruction. In rare instances biopsy is essential for a positive diagnosis.

## TREATMENT

Tumors in the rectum and sigmoid, accessible through the proctoscope, should be snared off. Snaring and cauterization may result in a cure. Moreover, this procedure should precede more radical intra-abdominal operations, for even when colectomy is performed, unless the tumors in the rectum have been removed, the symptoms persist in a modified form.

In the disseminated type, the prognosis is best when the tumors are localized to a segment of the bowel that can be excised. This frequently means a partial or total colectomy, which the weakened condition of the patient may interdict. Less radical surgical procedures are appendicostomy or colostomy for irrigation; ileostomy by the Brown technic to divert the fecal current and for colonic flushing and ileosigmoidostomy. These measures are largely palliative, but in some instances the neoplastic process is held in check, the tumors regress, and the general condition of the patient is so improved that colectomy can be undertaken with more favorable prospects of success.

Of four cases of polyposis that I observed, one developed carcinoma.

## REPORT OF CASES

CASE 1.—J. T., a man, aged 29, who had had intermittent bloody diarrhea of fourteen months' duration, showed typical multiple adenomas at sigmoidoscopy, varying in size from that of a pea to that of a hazelnut, and extending beyond the reach of the tube. I did a colostomy in the transverse colon, as tumors were not palpable through the bowel wall above the sigmoid. Unfortunately, when the bowel was opened on the fifth day it was found that adenomas extended to the hepatic flexure and presumably to the cecum. By irrigation through the colostomy, the greater number of growths distal to the stoma disappeared, and those remaining regressed. The growths proximal to the colostomy were influenced to a less degree, but the patient was restored to health and carried on his usual occupation for three years. Then intractable diarrhea recurred through the colostomy, and he died of exhaustion three weeks after an ileostomy.

The excised colon showed many small adenomas on the mucosa distal to the colostomy, while large areas of adenocarcinomatous degeneration were present proximal to the colostomy.

CASE 2.—F. L., a woman, aged 33, illustrates the development in the same person, in sequence, of infection, ulceration, adenoma and cancer. Ulcerative colitis had existed for seventeen years with remissions and exacerbations. Several small sessile adenomas observed in the course of treatment were removed. Six years later, the patient noticed some blood in the stools for one month, and digital examination showed on the left side of the rectal ampulla an elevated tumor 4 cm. in diameter, with a soft, smooth surface and indurated base, the entire mass freely movable with the mucosa. Sections of the tumor, after removal one month later, demonstrated typical adenocarcinoma. This was, in my experience, the earliest case of carcinoma of the rectum to come to operation.

CASE 3.—M. B., a woman, aged 37, after suffering from constipation and rectal bleeding of six months' duration, had been subjected to a hemorrhoidectomy under the mistaken diagnosis of "bleeding piles." Blood clots continued to pass with, and independent of, the stools. The examining finger felt a freely movable growth, the size of a hen's egg, at the level of 3 inches, and examination of sections of a biopsy specimen resulted in a diagnosis of malignant adenomatous polyp. Local excision relieved all symptoms and was followed by a restoration of health for three years. Then there was a recurrence. Local removal of the growth with wide excision of the base resulted in a clinical cure that is now of more than five years' duration.

CASE 4.—D. C., a woman, aged 57, had complained of "bleeding piles" for many years, and for several months of a protrusion at stool which had to be replaced. A small pedunculated polyp just above the anal canal was removed by ligature. The pathologist reported malignant degeneration of an adenoma. The site of attachment was then excised broadly, the tissues showing only chronic inflammation. Nearly five years has now elapsed without signs of recurrence.

CASE 5.—K., a man, aged 76, had had rectal bleeding for eight years, with progressive constipation and a protrusion which at first occurred only at stool and could be reduced but which in time protruded permanently from the anus, forcing the patient to sit on one buttock. Examination showed a reniform tumor 3½ by 2 inches attached just within the anal verge of the left side and to both commissures for about two thirds of the circumference of the anal ring. Treatment consisted in local wide excision. Histologic examination of the growth confirmed the clinical diagnosis of adenocarcinoma. This is a striking example of a simple adenoma becoming malignant as a result chiefly of repeated and prolonged trauma.

CASE 6.—E. P., a man, aged 60, had had bleeding from the rectum for seven months with frequent stools and tenesmus, and a loss in weight of 10 pounds (4.5 Kg.). The examining finger could just reach a tumor about the size of a hickory nut, hard, and with a nodular surface. Its rather broad base of attachment was not indurated. Proctoscopy showed that the tumor was attached to the margin of the highest valve of Houston. In May, 1925, the base of the tumor was coagulated by surgical endothermy applied through the operating proctoscope, and a biopsy specimen taken which showed adenocarcinoma. All symptoms were relieved and now a smooth scar marks the site of removal.

CASE 7.—C. M., a man, aged 67, during the six months prior to consultation had been passing bright red blood with the stools and had had two large hemorrhages. He had lost 8 pounds (3.6 Kg.), and felt weak and dizzy.

Digital examination was negative, but proctoscopy showed a growth 3 cm. in diameter, at a level of 5 inches, attached to the upper surface of the highest Houston valve. The base, 2 cm. in width, did not convey the impression of being indurated when a probe was applied to it. In May, 1926, without anesthetic, the growth was snared off, very slowly through the proctoscope, a small portion of the adjacent mucosa being grasped in the loop. Hemorrhage was slight, and the wound was phenolized. The pathologist's report on the growth was adenocarcinoma. Five days later, six seeds, each containing 0.3 millicuries of radon, were implanted around the site. A soft, smooth scar is present now, and there have not been any signs of recurrence.

COMMENT

Although a solitary adenoma may exist for years without becoming malignant, the instances here reported justify the conclusion that every neoplasm of this type should be considered a precancerous lesion and promptly eradicated.

In general, the more sessile a growth the greater is its liability to malignant change.

It may be reasonably assumed that many cancers of the rectum and rectosigmoid develop from adenomas that could be detected and removed while still innocent, if proctosigmoidoscopy were employed more regularly in routine examination.

A polypoid adenoma that is accessible can usually be ligated and cut off safely. If sessile, wide excision of the base is indicated and cauterization or coagulation of the site of removal.

Solitary growths beyond reach of the finger but accessible through the operating proctoscope often present a difficult problem. If pedunculated, they may be snared off. I have had a practical strong snare made for this purpose.

When sessile, but removable, the possibility that the growth is already malignant must be borne in mind. Under these circumstances electric coagulation (surgical endothermy), or radon implantation, when the tumor is snared off, are efficient safeguards against dissemination in case the growth has already undergone malignant change. Otherwise, approach to these high-lying growths must be made through the abdomen, which involves the risk of peritoneal infection when the colon is laid open.

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## ABSTRACT OF DISCUSSION

### ON PAPERS OF DRS. MCGLANNAN AND MCCLEARY AND DR. YEOMANS

DR. JOSEPH C. BLOODGOOD, Baltimore: In 1913 when I reviewed every case of tumor of the stomach and the colon, including the rectum, all benign polypoid tumors of the stomach and colon were found at autopsy. Then came a period in which we operated for certain reasons, and found a polypoid tumor in the portion of the resected colon in which there also was a carcinoma. We have gone over all the tumors of the small intestine, and the paper published by a Chinese surgeon, now professor of surgery at Peking, is most enlightening. This is a submucous tumor. There is every reason to believe that the submucous tumor, whether we find it in the appendix, small intestine or stomach, can produce carcinoma. I myself have for the first time seen and operated on a man with a tumor clinically cancerous and of three months' duration. There are tumors that may precede cancer. There is every reason to believe that cancer never begins as cancer, and now we are getting those things that ultimately develop into cancer. I believe that in cases of polypoid tumor in the stomach or intestine it is a good plan to resect just as if it were a cancer. I have quite a number of cases in which the abdomen has been opened and the tumor taken out by the pedicle, perhaps not with the cautery and perhaps not followed by radium treatment, but in which there was a recurrence and death. It is just as easy to resect. There is no danger in the resection of an intestinal tumor, but removal of a tumor in the rectum by the combined operation is one of the most difficult operations in surgery. When one sees a small polypoid tumor and can get at it with a wire or with diathermy, the temptation, of course, is to remove it that way. There is danger in the partial removal of these apparently innocent tumors. Perhaps in the rectum, that very dangerous place of resection, we are justified in the less radical operation, but whenever a radical operation can be done for a tumor in the wall of the stomach, the small intestine or the large intestine, or rectum, one should do it.

DR. CURTICE ROSSER, Dallas, Texas: James Ewing has said that it is very fortunate that cancers are preceded by various forms of chronic irritation, many of which we can detect and eliminate and thus prevent cancer. Practically all anorectal cancers fall into one of two divisions: adenocarcinomas arising from the rectal glands, and squamous cell neoplasms from anal tissues. Dr. Yeomans has brought to our attention the fact that adenomas, single or multiple, are preceded by irritation, chiefly inflammatory, and has stressed the high incidence of those benign adenomas in which the stages of inflammation, gland cell hypertrophy and hyperplasia have been continued in logical sequence to malignant degeneration. Many proctologists (I am one) will go further and make the statement, difficult to prove but nevertheless impossible to refute, that all glandular rectal cancers were first benign adenomas, and that their detection and elimination is, therefore, the logical prophylaxis of this division of anorectal malignancy. The general dissemination of what is already known about the origin of the squamous cell division should make it as preventable as other forms of malignant epithelial growths. When, in other words, we are all ready to admit that the antecedent hemorrhoid, the neglected fissure or fistula, the chronically infected anal canal are the exciting factors and the precursors of squamous cell malignancy, the complete prophylaxis of both divisions of anorectal cancer will be apparent.

DR. ALOIS B. GRAHAM, Indianapolis: A rectal adenoma is an excessive overgrowth of the normal glandular elements of the rectal mucosa. The only difference between it and a malignant adenoma is that it does not perforate the muscularis mucosae or basement membrane. Otherwise, it very closely resembles the malignant growth. Although they are referred to usually as innocent epithelial tumors, it is very important to remember the established fact that these seemingly simple tumors of the rectum exhibit, sooner or later, a rather marked tendency to undergo malignant transformation. This transformation occurs more frequently in the multiple variety; yet we must look on the single adenoma with suspicion and consider the possibility of its being a precancerous condition. In fact, malignant changes have been found in some part or another of large adenomas. So marked is the tendency of these apparently simple tumors to become malignant that Mummery regards them as merely a stage in the development of malignant disease. Therefore, every rectal adenoma, being regarded as a definite precancerous condition, should be removed as soon as it is diagnosed, regardless of the symptoms presented. These adenomas are easily diagnosed. The diagnosis as to whether malignant transformation has occurred will be determined by a microscopic study of a section of the tumor. In the multiple variety, the observation that several tumors do not show any malignant transformation means nothing so far as the other tumors are concerned. It has been clearly demonstrated that a benign adenoma may be almost contiguous with a malignant adenoma. It occurs to me that it is good teaching to state that all rectal adenomas, if let alone, will eventually develop malignant transformation at some point or another.

DR. ALEXIUS MCGLANNAN, Baltimore: As far as our knowledge goes, the attack for which this colored man came to the hospital was his first gastro-intestinal upset. Carcinoid as a precancerous lesion, I think, depends on what we believe about the cells from which it is derived. Certainly, there is some difference from the ordinary epithelial cell. The argentaffin granules are characteristic of this type of cell, and these

granules are not found in the ordinary epithelium that makes up the usual adenoma of the gastro-intestinal tract. We have tested this reaction in studying this particular tumor. We took a carcinoma of known malignancy and put it through the silver solution; we were unable to get any argentaffin granules in the known cancer, while we got them in all of our sections from the carcinoid tumor. With a tumor of the intestinal wall it is better to resect than it is to attempt to take out the small tumor, and leave the wounded intestinal wall to heal in the best way that it can under the surgery. We resected the bowel in this man because of the intussusception.

## TRANSFUSION IN INFANCY AND CHILDHOOD

### REVIEW OF FIVE HUNDRED AND FIFTY-SIX CASES *

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Transfusion in infancy and childhood is a relatively recent therapeutic measure. The first transfusion of blood for hemorrhagic disease of the new-born was performed in New York City by Dr. Alexis Carrel [1] in 1908. During the next ten years, transfusion in infancy was mainly confined to this condition. It has been only within the past decade that transfusion in infancy and childhood has been more generally used. In 1921, Robertson, Brown and Simpson [2] made this significant statement: "From a perusal of the literature we have only been able to find two reports of blood transfusion in childhood [report of nine cases by Kerley [3] and thirteen cases by Lowenburg [4]]. This does not include hemorrhage of the new-born."

It has been only in the last twenty-five years that the existence of isohemagglutinins in the blood has been known. This discovery was made by an Englishman, Shattock,[5] and an Australian, Landsteiner,[6] in 1900. Following this, Jansky,[7] in 1906, demonstrated that bloods could be divided into four groups according to agglutinins. In 1910, Moss [8] independently made a similar classification of agglutinins in blood. Since these discoveries, blood transfusion has been put on a rational basis, and its use as a therapeutic measure is becoming more general.

#### BLOOD GROUPING

It is now universally agreed that some form of blood matching is absolutely essential before giving a transfusion. Exceptionally, there may arise a need for immediate transfusion when a delay of a few minutes would seem to cost the life of the patient, but the few minutes required for the matching is time well spent, even though the emergency seems great.

The chief value of blood grouping today is as an aid in eliminating donors. I do not consider it a safe method of selecting a donor—that is, if only the grouping is to be done before the transfusion is given. So frequently has it been found that donors of the same group do not match that only cross-matching is relied on. This is the only safe method of selecting suitable donors. In my experience the so-called universal donor has not always matched, nor have the donors in the same group matched any more frequently. In the last two years, I have found universal donors incompatible in twelve cases. This incompatibility was due to agglutination in eight cases, and to hemolysis in four cases.

Dr. Glover H. Copher [9] states that:

> Until 1920 the universal donor was used for transfusion of any group. The practice was discontinued because of reactions traceable to the use of such blood. . . . In spite of the high dilution to which the incompatible plasma is brought after introduction into the veins of the recipient, fatal accidents are recorded from the agglutination of the red blood cells of the recipient by the donor's plasma when the recipient belonged to a group other than that of the universal donor. . . . Reports of the Inter-Allied Surgical Congress state that fatal accidents have occurred from hemolysis of the blood corpuscles of the recipient by the donor's plasma.

It was once taught that infants under 6 months could always be transfused with safety from the mother. We now know this to be untrue. Halban [10] found that the mother's blood had greater agglutinating power than blood from the umbilical vein of her infant. Unger [11] states that 13 per cent of new-born infants show the presence of agglutinins in the serum as against 97 per cent of adults, and that 25 per cent of the cells in the new-born can be agglutinated as against 50 per cent in adults.

According to Jones,[12] 197 specimens of blood from young infants were examined, and 78.8 per cent could be placed in one of the four groups. He showed that the different groups occurred with approximately the same frequency in the new-born as in adults. Iso-agglutinins have been demonstrated in the blood of a seven months fetus.

In 1920, 160 specimens of umbilical cord blood were examined by Minot and Weld,[13] who found that 70 per cent could be definitely grouped. Happ [14] established the group by both serum and cell reaction in 22.7 per cent of infants between 1 and 3 months of age; in 31.8 per cent of infants from 4 to 6 months, and in 69.7 per cent of infants from 6 to 12 months. He states that after 1 year the group can be established in practically every case.

One infant in this series, who was operated on for pyloric stenosis at 3 weeks of age by Dr. T. M. Green, developed a postoperative hemorrhage twenty-four hours after operation and came near being exsanguinated. Her blood was cross-matched with her mother's, maternal grandmother's and father's blood. The serum of both the mother and the maternal grandmother completely agglutinated the baby's cells. The father's blood matched perfectly both ways. A transfusion was given, in which the father's blood was used, and the child made a complete recovery.

Another baby, 4 weeks old, very anemic from congenital malaria, would not match either father or mother. The mother's serum agglutinated the baby's cells, and the baby's serum agglutinated the father's cells. Six or eight donors were tested before a suitable one was found.

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* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Diseases of Children at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

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12. Jones, B. B.: Iso-Agglutinins in the Blood of New-Born, Am. J. Dis. Child. **22:** 586 (Dec.) 1921.
13. Minot, G. R., and Weld, M., cited by Jones (footnote 12).
14. Happ, W. M.: J. Exper. Med. **31:** 313 (March) 1920.

That it is not safe to use a donor repeatedly without retesting is seen from the following cases:

CASE 1.—B. H., aged 6 months, weight 6 pounds (2.7 Kg.), a typical athreptic infant without infection, was given a transfusion from his father's blood on admission to the hospital; no reaction followed. One week later, the father's blood was incompatible; the baby's serum agglutinated the father's cells. The father's brother was tested and matched perfectly. His blood was used on two different occasions, being matched each time, and no reactions followed.

CASE 2.—K. H. (chart 11), aged 10 months, weight 20 pound (9 Kg.), developed a severe diarrhea with high fever and prostration. She was matched against eight donors before a suitable one was found. She was given a transfusion with no reaction. One week later this donor was retested, and the baby's serum agglutinated the donor's cells. The cause of the diarrhea in this case was double mastoiditis, and the stools became normal soon after the mastoids were drained.

It is absolutely necessary to cross-match the blood before each and every transfusion, and fresh serum and cells should be used (blood obtained the same day of the transfusion). It may be that blood groups do not change, but the agglutinating power of the serum does change. Dyke [15] says that "there has been shown a variation in the agglutinating ability from serums of different persons of the same group, as well as a variation in the ability of corpuscles of the same group to be agglutinated by the same serum." Certain drugs, roentgen-ray irradiation and general anesthesia change groups temporarily, according to Vorschutz.[16] Bond [17] states that "iso-agglutinin formerly absent in the serum of a given person may appear in that serum after the person has successfully withstood a systemic infection." It has been stated that hemolysis without simultaneous or preceding agglutination does not occur. In the last two years, I have had this reaction occur ten times in matching bloods for transfusion.

In this series I had only two cases that showed definite hemolytic reactions following transfusion.

CASE 3.—A boy, aged 18 months, had an infectious diarrhea. Transfusion was given from his mother. Forty minutes after the transfusion he had a hard chill followed by a rise of temperature to 105. Hemoglobinuria was noted one hour after the transfusion, and jaundice was noted the following day. These symptoms disappeared in two or three days, and he made an uneventful recovery. A request was made for their blood (original specimens) to be retested. It was found that definite hemolysis occurred with the mother's serum and baby's cells. There was no agglutination.

CASE 4.—A boy, aged 8 years, with hemophilia, was bleeding from a wound over the left eye. I matched his blood against that of his father and two friends, all three of which matched perfectly both ways, so far as could be seen with the microscope. One of the friends was thought to be the best match of the three and was selected as the donor. Forty-five minutes after the transfusion, the child had a chill followed by a sudden rise in temperature to 105. He became cyanotic, with weak and thready pulse. Hemoglobinuria followed in a few hours, and jaundice was definitely noted the following day. Suppression of urine developed. Forty-eight hours after this transfusion he was given an exsanguination transfusion, 240 cc. was withdrawn and 500 cc. was put in. Forty-eight hours later he was given a second exsanguination transfusion, with 260 cc. withdrawn and 600 cc. put in. The father was used in each of these exsanguination transfusions, and reactions did not develop. The hemoglobinuria cleared entirely following the first exsanguination transfusion, and the output of urine increased from 1 ounce in twenty-four hours to 20 ounces, and from 20 ounces the first twenty-four hours to 70 ounces in forty-eight hours following the second exsanguination transfusion. Following the first transfusion, the original specimens of blood were all retested, and no hemolysis or agglutination could be detected.

These are the only two cases in the series which showed any hemolysis following transfusion. The first one should have been detected and prevented; the second could not have been.

The method we use in matching blood is "cross-matching." The serum is separated from the blood, and a suspension of red cells in saline solution is prepared. Two drops of the donor's serum is mixed with two drops of the patient's red cell suspension, placed on each end of a glass slide. This suspension is looked at immediately after the mixture is made to determine the thickness of the cell suspension. The mixture is shaken up two or three times during the half hour of observation. It has been observed that, when the mixture is shaken, some few cases will show agglutination which otherwise would not. At the end of thirty minutes, the specimens are examined under the low power of the microscope; thinning out of the suspension of red cells is definitely looked for and is seen if hemolysis is present. If there is a homogeneous mixture of the red cells and no clumping, agglutination is not present.

It has been my observation that too little emphasis has been laid on hemolysis in blood matching. Students are told that such a phenomenon occurs, but are very rarely shown a test in which it does occur, usually being shown only those cases that do and do not agglutinate. As a result of this, hemolysis is forgotten about in the usual routine of blood matching, since it occurs so infrequently.

### METHOD USED

The Unger method has been used in practically all the cases in this series. I use this method, first, because I know how to use it. I think that the method the operator is most familiar with is the one of choice. Secondly, I use this method because I prefer to use untreated blood. In this series of 556 transfusions, 537 were given by the Unger method; ten by the citrate method in the vein; five by the citrate method by the intraperitoneal route, and four by the Lindemann method, two of which were given by the superior longitudinal sinus route and two through the umbilical vein.

The median basilic vein at the bend of the elbow or the saphenous vein over the internal malleolus are the veins of choice in infants. In my experience, these veins in the new-born babies are large enough for use in transfusion. Whenever it is possible to enter one of these veins in an infant without cutting down on them, this method is practiced. The youngest infant in whom I have done transfusion without cutting down on the vein was one of 3 months. The median basilic vein was used. I have given twenty-five transfusions to infants under 1 year without cutting down on the vein. It has been necessary to cut down on the vein of only one donor, and this was on account of the extreme amount of adipose tissue in the arm. It was impossible either to see or to feel any superficial vein, and she was the only available donor.

### REACTIONS TO TRANSFUSIONS

Any method of transfusion will be followed by a varying percentage of reactions. There are a number of factors that may enter into the production of these reactions, in the order of their importance, as follows: (1) the care and skill used in matching the bloods; (2) the skill of the operator, and (3) the method used.

15. Dyke, S. C.: Lancet **2**: 1271 (Dec. 16) 1922.
16. Vorschutz, Joseph: Group Agglutination in Blood Transfusion, Ztschr. f. klin Med. **94**: 459 (June 30) 1922.
17. Bond, C. J.: Brit. M. J. **2**: 751 (Dec. 8) 1917.

Lewisohn [18] states that in Mount Sinai Hospital 23 per cent of the citrate transfusions gave chills, while 34 per cent with the Unger method caused posttransfusion chills. He also says that there were much fewer reactions obtained when transfusions were given by skilled operators. In my series, 15.4 per cent showed some reaction. The highest percentage of reaction in any one year was 25, and the lowest percentage of reaction in any one year was 12.5.

Reactions are manifested by fever, chill, nausea, malaise, cough, dyspnea, cyanosis, urticaria and headache. An elevation of as much as one degree of fever, which followed soon after the transfusion and was not caused by another condition already present, was termed a reaction. Two per cent of my patients had chills following transfusion. Not any more reactions were noted in patients with elevation of temperature before the transfusion than in those without.

During the transfusion, the operator should watch the patient's face in order that the first sign of any reaction may be immediately detected. It is wise to give the first two or three syringefuls of blood very slowly, so that the possibility of an anaphylactic shock may be detected early, or the chance for reaction from incompatible blood minimized. Reactions may occur following the injection of the first syringeful of blood, or they may be delayed from one to three hours. In one case of mine, the reaction was delayed twenty hours, when a sudden rise of temperature to 104 occurred, associated with slight abdominal pain and distention, which was followed by abdominal ascites in two or three days.

Pemberton [19] reports 21 per cent of reactions from citrate transfusions in 1,000 cases at the Mayo Clinic. Lewisohn reports seventy-five cases of citrate transfusion with 10 per cent showing chills.

## INDICATIONS

As more is learned of the value of transfusion, the indications for its use become greater. There was a time when transfusions seemed indicated only in severe hemorrhage, profound primary and secondary anemia, and as a "last resort" measure. It can be easily seen of how little value this remedy was when applied in only these extreme cases.

## BLOOD DYSCRASIA

From clinical experience, I have learned that there are many more conditions that are definitely benefited by transfusion than are mentioned in the present-day textbooks. I have found transfusion to be of value in the following conditions:

*Hemorrhagic Disease of the New-Born* (ten cases, thirteen transfusions; eight cured, two deaths).—Transfusion in hemorrhagic disease of the new-born is an absolute specific. It should be thought of just as is diphtheria antitoxin in diphtheria; and, just as in diphtheria, the earlier the diagnosis and treatment, the lower the mortality. The mortality in this condition ranges from 35 to 87 per cent. One of my patients who died had a massive hemorrhage of the brain, as was shown at autopsy, and in another there had been bleeding from the intestinal tract for forty-eight hours. The baby was very dry and moribund when transfusion was performed, and died seven hours after the transfusion, without having had a post-transfusion reaction.

Subcutaneous injection of blood will help in these cases, but transfusion is by far the safest procedure. The infant may become exsanguinated from an intestinal hemorrhage before any external evidence is seen. Transfusion replaces the blood lost and stops the hemorrhage, which meets all indications. Another important advantage of transfusion in these infants is that it will overcome a possible feeding handicap that might follow if the baby starts out with a secondary anemia. Athrepsia is not an uncommon picture that may follow in the cases which have not been properly treated. Subcutaneous injection of blood may stop the bleeding, but it will not relieve the anemia.

*Purpura Hemorrhagica* (three cases, four transfusions; three cases improved, no deaths).—These three cases were promptly benefited by the transfusion, but symptoms returned from ten to twelve months later. Since the last transfusion in these cases, quartz light treatment has been given to the point of blistering, and there has been no return of symptoms, except for two small spots on one of the patients. As soon as these spots were noted, quarts light treatment was again given, and no further symptoms were seen.

*Hemophilia* (eight cases, fourteen transfusions; seven improved, one death).—Transfusion replaces blood loss in this condition, stops hemorrhage and temporarily restores the blood to normal, but does not cure the condition. The hemoglobin before transfusion in these cases has varied from 20 to 65 per cent, and the red cells from 1,000,000 to 3,500,000. In this group there were two brothers, one aged 7 years, the other 1 year.

*Acute Lymphatic Leukemia* (three cases, five transfusions; one improved, two deaths).—Transfusion in this condition gives only temporary benefit. Each patient was benefited for a limited time.

*Hodgkin's and Banti's Disease* (three cases, three transfusions; two improved, one death).—There was one case of Hodgkin's disease in which death occurred from complicating bronchopneumonia one week after transfusion. The patient had had enlarged glands, first in the groin, and later the cervical and axillaries; finally general glandular enlargement developed.

There were two cases of Banti's disease.

CASE 5.—One patient, aged 9 years, showed a hemoglobin of 35 per cent; a red cell count of 3,500,000; a white cell count of 9,000, and 49 per cent of polymorphonuclears. The red cell fragility was normal. The Wassermann reaction was negative. The Pirquet reaction was + + +. The temperature varied from 98 to 99. The patient was sallow and undernourished; the spleen was hard and 2 inches below the costal margin. Splenectomy was advised, but the parents refused.

*Primary Anemia* (two cases, three transfusions; two cured).—There were two of these cases, in both of which there was a complete recovery.

CASE 6.—C. S., aged 14 days, of normal delivery, with a birth weight of 8 pounds (3.6 Kg.), was well nourished and of a very ruddy color at birth. I saw him when he was 1 day old, and was called to see him at 14 days. At that time he was waxy pale; the pulse was thready, and he appeared to be dying. There was no history of any bleeding. The hemoglobin was 10 per cent; the red blood count, 800,000; the white cell count, 28,000, and polymorphonuclears 46 per cent. The Wassermann reaction of both the baby and the mother was negative. The infant was given a transfusion of 150 cc. of blood from an aunt, and the hemoglobin came up to 44 per cent; the red blood count to 2,400,000, and the white cell count to 14,000. One week later he was given a second transfusion of 160 cc. from the same donor. The hemoglobin

18. Lewisohn: Boston M. & S. J. **190:** 733-742 (May) 1924.
19. Pemberton, J. de J.: Surg. Gynec. Obst. **28:** 262 (March) 1919.

before transfusion was 40 per cent; the red cell count, 2,600,000, and the white cell count, 12,000. Following the transfusion, the hemoglobin was 60 per cent, and the red cell count 4,000,000. He made an uneventful recovery, and is now a robust boy of 2½ years.

CASE 7.—V. S. was a well nourished and well developed baby at birth, with good color, and a birth weight of 8½ pounds (3.8 Kg.), but, when seen at 6 weeks, had grown very pale. There was no history of bleeding. The hemoglobin was 30 per cent; the red blood cell count, 2,000,000, and the white cell count, 18,000. A transfusion of 160 cc. of blood was given from the father; the mother's blood would not match. Following the transfusion, the hemoglobin was 60 per cent; the red cell count, 4,000,000. The spleen came down to the level of the umbilicus, but two weeks later could not be felt. The Wassermann reactions of father, mother and baby were negative.

*Von Jaksch's Anemia* (one case, one transfusion; one death):

CASE 8.—This baby was 5 months old and weighed 7 pounds (3.2 Kg.). He had a hemoglobin of 20 per cent; a red corpuscle count of 2,000,000, and a white cell count of 30,000, with typical differential cells. The spleen was at the level of the umbilicus. He died two weeks after the transfusion, of bronchopneumonia.

*Congenital Hemolytic Icterus* (two cases, four transfusions; two improved):

CASES 9 and 10.—These patients belonged to the same family. Both showed the typical red cell fragility test, with enlarged spleen, moderate jaundice and secondary anemia. One was a boy, aged 7 years; the other a girl, aged 9 months. Both had been pale and moderately jaundiced since birth. Their maternal grandfather died of "jaundice and enlarged spleen" at 65 years. Both children are living and have delayed having a splenectomy.

*Malaria and Hookworm Anemia* (nineteen cases, twenty-three transfusions; five cured, seventeen improved and two deaths).—The blood examination in these cases showed considerable variation. The hemoglobin ranged from 10 per cent to 30 per cent, with a red blood count varying from 900,000 to 1,500,000. It is striking how well a hookworm patient seems to feel with a hemoglobin of from 10 to 15 per cent. Besides having transfusion, each patient received the proper treatment for hookworm and for malaria.

*Preoperative and Postoperative States, Including Shock* (eighteen cases, twenty transfusions; no reactions, no deaths).—These included patients who were advised to have a transfusion to make them a better operative risk, and others who had hemorrhages or were in shock following an operation. All were definitely benefited, and those in whom transfusion was done prior to operation did not have operative shock.

*Septic Infections* (eighteen cases, twenty transfusions; seven deaths).—This series included unresolved pneumonia and empyema, four cases; rheumatic endocarditis, one case; septic sore throat, two cases; typhoid, one case; erysipelas, one case; retropharyngeal abscess, one case, with one death; acute hemorrhagic nephritis, one case, with one death; whooping cough and colitis, one case; osteomyelitis and septicemia, three cases, with one death; influenza and myocarditis, one case, with one death; pneumonia and pneumococcus meningitis, two cases, with two deaths.

CASE 11.—O. C., aged 36 months, weight 22 pounds 12 ounces (10.3 Kg.), admitted, Jan. 4, 1926, with a temperature of 103, a beefy-red throat and very large inflamed tonsils, had developed a very sore throat with fever and a rash suggestive of scarlet fever one month before admission. She had had a temperature ranging between 101 and 103 since the onset. The chest was clear, and the patient looked very emaciated. Intraperitoneal injections of saline solution were given immediately, and six hours later a transfusion of 300 cc. of blood. Nine days later a second transfusion of 325 cc. of blood was given, after which the temperature came down and the weight continued up. The tonsils and adenoids were taken out five days after the second transfusion. The patient gained 21 ounces (0.6 Kg.) in twenty-eight days.

*Toxic Lobar Pneumonia* (eleven cases, thirteen transfusions; ten cured, one died. Mortality 9 per cent).—Lobar pneumonia in children has a low mortality. The cases included in this series were very toxic. In one of these cases, the most toxic of the series, two transfusions were given. The second transfusion was an exsanguination transfusion, which seemed to be responsible for the patient's recovery.

CASE 12.—E. K. S., aged 28 months, weight 29 pounds (13 Kg.) had been a premature baby, weighing 3 pounds (1.4 Kg.) at birth. Three months before admission she had a bad attack of whooping cough, and still had a paroxysmal cough when admitted to the hospital. The onset of the present illness was sudden, with high fever followed by a convulsion. Following this, artificial respiration had to be given for forty minutes. Eight hours later she was admitted to the hospital with a temperature of 106. Saline solution and dextrose were given immediately, and she was kept in a bath more or less constantly for reduction of temperature. Four hours after admission to the hospital, she was given a transfusion of 175 cc. of blood. Twenty-four hours later the temperature went back to 106, she began having convulsions, and it looked as though the end was near. An exsanguination transfusion was given; 450 cc. was withdrawn and 500 cc. was given. She had no more convulsions, had a crisis on the sixth day and made a complete recovery. A roentgenogram of the chest on admission showed a consolidation of the left upper lobe.

*Athrepsia* (twenty-five cases, thirty-three transfusions; twenty cured, five deaths. Mortality 38.4 per cent).—These cases represented the extreme malnutrition cases without infection being present. In all of them there was a history of poor feeding and constant loss in weight. All of these cases showed a secondary anemia. The results obtained in this type of case were very gratifying. An increased tolerance for food was the chief beneficial effect from the transfusion, and this was shown in the immediate upward trend of the weight curve. It was often very striking to see the weight curve begin to go up immediately following the transfusion, without a change having been made in the diet.

CASE 13.—J. F., aged 10 months, weight 8 pounds (3.6 Kg.), same as the birth weight, had nursed and gained well for four months; then she was put on the bottle, and for the past six months had had all the proprietary foods, and a number of cow's milk modifications, without success with any of them. The baby continued to lose weight and to have an occasional attack of diarrhea. All these foods had insufficient calories. On admission, the baby was athreptic without any sign of infection. A transfusion was given the second day in the hospital, and the baby was immediately put on a whole lactic milk formula sufficient to meet the caloric needs. An immediate gain in weight was noted. A second transfusion was given, and she gained 5 pounds (2.3 Kg.) in seventy days.

CASE 14.—N. S., aged 18 months, weight 12 pounds 2 ounces (5.4 Kg.), had been breast fed six months and was then put on the bottle. A number of different formulas were tried, and each proved equally unsuccessful, as none contained sufficient calories. For four months the baby had a diarrhea, passing from four to eight stools daily, which were watery with some curds. On admission to the hospital he was practically moribund, dehydrated and cyanotic, and had an inanition

temperature of 101. He was immediately given intraperitoneal injections of saline solution, and four hours later a transfusion. Five days later he developed purpuric spots on the body, at which time he was given a subcutaneous injection of blood, because a suitable donor could not be had. One week later transfusion was done again, and from that time on his weight went steadily upward. He gained 3 pounds (1.4 Kg.) in forty-nine days.

*Athrepsia with Parenteral Infection* (111 cases, 152 transfusions; sixty cured, twenty improved, one unimproved, thirty deaths, a mortality of 27 per cent).—All of these patients were under 2 years of age, and either had an acute diarrhea or some infection of the upper respiratory tract with an associated diarrhea. Thirty-three had definite mastoiditis, and sixteen of these died.

CASE 15.—E. J., aged 7 months, weight 10 pounds 15 ounces (5 Kg.), birth weight 8 pounds (3.6 Kg.), had been nursed three months, at which time he weighed 12 pounds (5.4 Kg.), and had then been given Dryco, two tablespoonfuls to 4 ounces of water, every three hours. After two weeks his formula was changed to diluted cow's milk and Mellin's food. During the past four months, his formula had been changed seven different times, without improvement. He gradually lost weight and had from six to twelve stools daily. On admission, the baby was undernourished and anemic. He had a temperature of 100, with a moderate nasopharyngitis. Both ear drums were slightly reddened, and there was some sagging of the postsuperior canal wall on both sides. Transfusion was done, the day he was admitted, and he was put on whole lactic milk and karo syrup, which he took very well. Five days after admission, one ear drum was incised, and the other the following day. Ten days after admission a bilateral mastoidectomy was done, and both mastoid antrums were found filled with creamy pus and granulations. His temperature came down following the mastoidectomy, and he gained 2 pounds (0.9 Kg.) in eighteen days in the hospital, and 5 pounds 5 ounces (2.4 Kg.) in forty-two days following admission to the hospital.

*"Feeding Cases" of Secondary Anemia* (134 cases, 149 transfusions; ninety-four cured, twenty-nine improved, eleven deaths, a mortality of 8.2 per cent).—These cases of anemia were due to improper feeding, rickets, poor hygiene and prolonged breast feeding, as in "milk anemia." The patients responded remarkably well. Immediately, there could be noted increase in appetite, color and vigor, and in a few days there was a completely changed picture. In the place of a pale, fretful, soft baby, who would not eat and was losing weight, there was a baby with a ruddy color, calling for food, playful, happy and gaining in weight. It was striking to see how these infants ate and digested food which had previously caused intestinal upsets and colic with watery, loose stools. The food tolerance became definitely increased. These children ranged from 6 months to 4 years of age.

CASE 16.—H. N., aged 12 months, weight 14 pounds 2 ounces (6.4 Kg.), had been nursed eight months, and then put on the bottle. He then weighed 20 pounds (9 Kg.), but had since been going back. He was fed on raw cow's milk diluted, Mellin's food, Dryco, Klim and strained cereal, all of which contained insufficient calories. The physical examination was negative except that the infant was malnourished and somewhat pale. He was given a transfusion of 200 cc. on the day of admission, and seven days later a second transfusion of 240 cc. He made a very satisfactory recovery, gaining 2 pounds 13 ounces (1.3 Kg.) in fourteen days.

*Infectious Diarrhea* (twenty cases, twenty-two transfusions; twelve cured, three improved, five deaths).—This type of case was usually the result of improper diet. The temperature of these patients ranges from 100 to 103; they have frequent stools with or without blood. The number of stools varies from ten to thirty or more daily. All these patients should be given parenteral fluids, and those that do not respond to fluids should be given transfusions.

CASE 17.—F. W., aged 36 months, weight 20 pounds 8 ounces (9.2 Kg.), two weeks before had developed high fever, vomiting and diarrhea with bloody, mucous stools, from twenty to thirty each day, with considerable straining. He had been fed on raw cow's milk and "regular diet from the table." On admission he looked very toxic; the skin was dry, and the eyes were sunken. His temperature was 103, the chest was clear, and the ears and throat were normal. He was given dextrose and saline solution freely. For two days his condition seemed very satisfactory, but slumped somewhat on the third day, and a transfusion of 300 cc. of blood was given. His condition immediately improved; the weight curve continued upward after the blood was given, and no further intraperitoneal injections were necessary. He received 1,900 cc. of intraperitoneal saline solution and 550 cc. of dextrose the first twenty-four hours in the hospital. Saline solution was given every eight hours the first day. He gained 4 pounds 9 ounces (2 Kg.) in seventeen days.

*Acute Intestinal Intoxication* (twenty-five cases, twenty-six transfusions; twelve cured, three improved, five deaths).—In this type of case an immediate transfusion is needed. In many cases it seems just as much of an emergency as a ruptured appendix. The patients are overwhelmed with their infection, and frequently have convulsions. Often they are dried out from vomiting and diarrhea, and should receive fluids immediately, followed by transfusion in a very few hours. The mortality in this type of case, if untreated, is very high, ranging from 75 to 100 per cent. My mortality with the treatment outlined has been 20 per cent. Chart 8 represents a typical case.

CASE 18.—R. B., aged 10 months, weight 16¼ pounds (7.4 Kg.), had been nursed four months, then fed on whole lactic milk. He had been well until two days before, when he developed high temperature, restlessness, vomiting and loose stools. He was brought to the hospital in a comatose condition, with sunken eyes, dry, gray and somewhat cyanotic skin, and having loose, frequent stools. Acetone was very marked on his breath and was ++++ in the urine. He was immediately given dextrose intravenously and saline solution intraperitoneally, and four hours later a transfusion of 220 cc. of blood. His temperature ranged between 106 and 107 for the first eight hours in the hospital. The following morning the temperature was 103, and gradually came down to normal in three days. He was out of immediate danger in twenty-four hours, and made an uneventful recovery. He gained 1 pound 8 ounces (0.7 Kg.) in fourteen days.

*Influenza-Acidosis* (fourteen cases, fourteen transfusions; fourteen cured).—In this type the patient is taken suddenly ill with an upper respiratory infection, red throat, vomiting and diarrhea. The urine shows a marked acetone reaction. These patients were frequently very toxic and prostrated, but they responded immediately to transfusion.

CASE 19.—J. H., aged 18 months, was taken suddenly ill with a croupy cough, high fever and extreme prostration twenty-four hours before admission to the hospital. He was cyanotic, very toxic and semicomatose, with a weak, rapid and thready pulse and grunty, rapid respirations. There was dulness at the spine of the right scapula, with feeble bronchial breathing and a few râles. The child was given 400 cc. of saline solution immediately, and eight hours later this was repeated. Eleven hours after admission to the hospital, a transfusion of 250 cc. was given. He was much improved the second day, and made a rapid and uneventful recovery, with the exception of having a malaria chill one day. A roentgenogram showed a shadow at the right hilum.

*Acute Mastoiditis* (nineteen cases, nineteen transfusions; thirteen cured, six deaths, mortality 31.5 per cent).—All of these cases began with nasopharyngitis, and some of them with a very definite bronchitis. Of the six patients who died, two developed meningitis following the operation, and four developed bronchopneumonia. These cases are frequently very toxic and acidotic, and if a transfusion is given just before the operation, there is a very much less stormy convalescence, with fewer complications arising. In those cases in which there is a stormy convalescence, repeated transfusion is the greatest therapeutic agent. The mortality in this type of case has been reduced one third by this procedure.

CASE 20.—M. E., aged 6 months, weight 16½ pounds (7.5 Kg.), a well nourished, breast fed baby, had had acute pyelitis two months before, with a temperature ranging between 102 and 105 for ten days, and a urine loaded with pus. With this, she also developed a purulent otitis media, which had continued to discharge up to twenty-four hours before the onset of the present illness, when the ears suddenly stopped draining and the temperature went up to 105. The urine at this time did not show pus. Both ear drums were reincised. Very little drainage followed, but there was sagging of the posterior-superior canal walls. She was watched for seven days by the otologists, at the end of which time a bilateral mastoidectomy was done. Both mastoid antrums were found filled with pus and granulations. A pure culture of hemolytic streptococcus was found in both mastoid antrums and in the blood stream. She was given 6 cc. of 1 per cent

TABLE 1.—*Summary of Cases*

| Year | Cases | Transfusions | Reactions | | Cured | Improved | Unimproved | Died | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Number | Per Cent | | | | Number | Per Cent |
| 1917 | 5 | 7 | 1 | 20 | 4 | .. | .. | 1 | 20 |
| 1918 | 12 | 14 | 2 | 16.6 | 7 | 4 | 1 | .. | .... |
| 1919 | 14 | 16 | 3 | 21.4 | 10 | .. | .. | 4 | 28.5 |
| 1920 | 16 | 20 | 4 | 25 | 11 | 1 | .. | 4 | 25 |
| 1921 | 21 | 26 | 4 | 19 | 11 | 2 | .. | 8 | 38 |
| 1922 | 20 | 30 | 5 | 25 | 12 | 1 | .. | 7 | 35 |
| 1923 | 23 | 28 | 5 | 21.7 | 22 | .. | .. | 1 | 4.3 |
| 1924 | 50 | 55 | 7 | 14 | 29 | 6 | .. | 15 | 30 |
| 1925 | 99 | 116 | 16 | 16.1 | 58 | 23 | .. | 18 | 18.1 |
| 1926 | 169 | 202 | 20 | 12.8 | 97 | 39 | 3 | 30 | 17.7 |
| 1927 | 31 | 42 | 4 | 12.5 | 21 | 3 | .. | 7 | 12.5 |
| Total | 460 | 556 | 71 | 15.4 | 281 | 79 | 4 | 95 | 20.6 |
| Ungar method | 448 | 537 | .. | .... | 281 | .. | .. | .. | .... |
| Citrate method | 5 | 10 | 2 | .... | 4 | .. | .. | 1 | .... |
| Intraperitoneal | 3 | 5 | .. | .... | 3 | .. | .. | .. | .... |
| Superior longitudinal sinus | 2 | 2 | 1 | .... | 1 | .. | .. | 1 | .... |
| Umbilical | 2 | 2 | .. | .... | 2 | .. | .. | .. | .... |
| Exsanguination transfusion | 2 | 4 | 1 | .... | 1 | .. | .. | 1 | .... |

mercurochrome-220 soluble intravenously thirty-six hours after the mastoidectomy. Four days following the mastoid operation, a transfusion of 220 cc. of blood was given. Her temperature came down the following day and did not go up again.

CASE 21.—K. H., aged 13 months, weight 20 pounds (9 Kg.), was admitted to the hospital, April 9, 1927, with a history of vomiting and diarrhea, with high fever for one week. The stools, which numbered from six to fifteen each day, were very bloody. There was considerable tenesmus. A culture of the stool did not show dysentery bacilli, but did show a number of hemolytic streptococci. Fluids were given freely. A transfusion was given on the third day in the hospital. The temperature, as shown on the chart, ranged from 100 to 107. Ten days after admission to the hospital, a bilateral mastoidectomy was done, following which all symptoms subsided. A pure culture of hemolytic streptococcus was found in both mastoid antrums at operation.

*Toxic Scarlet Fever* (two cases, two transfusions; two recoveries).—These two cases were extremely toxic; in one a double mastoiditis developed, on which operation was performed; in the other a bronchopneumonia developed and a transfusion was given from a recent convalescent scarlet fever patient. In both cases there was complete recovery.

## SUMMARY OF CASES

Table 1 shows the number of transfusions by years from 1917 to April, 1927, inclusive, with the number of reactions, percentage of reactions and results obtained, and also the methods of transfusion used.

TABLE 2.—*Diagnosis in Cases Treated*

| Diagnosis | Cases | Transfusions | Reaction | Cured | Improved | Unimproved | Died |
|---|---|---|---|---|---|---|---|
| Hemorrhagic disease of new-born | 10 | 13 | 2 | 8 | .. | .. | 2 |
| Purpura hemorrhagica | 3 | 4 | .. | .. | 3 | .. | .. |
| Acute lymphatic leukemia | 3 | 5 | 1 | .. | 1 | .. | 2 |
| Hodgkin's and Banti's diseases | 3 | 3 | .. | .. | 2 | .. | 1 |
| Hemophilia | 8 | 14 | 1 | .. | 7 | .. | 1 |
| Primary anemia of infancy | 2 | 3 | .. | 2 | .. | .. | .. |
| Von Jaksch's anemia | 1 | 1 | 1 | .. | .. | .. | 1 |
| Malaria and hookworm anemia | 19 | 23 | 5 | 17 | .. | .. | 2 |
| Congenital hemolytic icterus | 2 | 4 | 1 | .. | 2 | .. | .. |
| Preoperative and postoperative conditions | 18 | 20 | 4 | 14 | 3 | 1 | .. |
| Septic infections | 18 | 20 | 6 | 7 | 2 | 2 | 7 |
| Lobar pneumonia (toxic) | 11 | 13 | 1 | 9 | 1 | .. | 1 |
| Athrepsia | 25 | 33 | 7 | 17 | 3 | .. | 5 |
| Athrepsia with parenteral infection | 111 | 152 | 14 | 60 | 20 | 1 | 30 |
| Feeding cases with secondary anemia | 134 | 149 | 15 | 94 | 29 | .. | 11 |
| Infectious diarrhea | 20 | 22 | 2 | 12 | 3 | .. | 5 |
| Acute intestinal intoxication | 25 | 26 | 4 | 12 | .. | .. | 13 |
| Influenza-acidosis | 14 | 14 | 1 | 14 | .. | .. | .. |
| Acute mastoiditis | 19 | 19 | 2 | 12 | 1 | .. | 6 |
| Toxic scarlet fever | 2 | 2 | 1 | 2 | .. | .. | .. |
| Celiac disease | 3 | 6 | 1 | .. | 2 | .. | 1 |
| Diabetes mellitus with secondary anemia | 2 | 2 | .. | .. | 2 | .. | .. |
| Congenital syphilis | 3 | 3 | 1 | 1 | .. | .. | 2 |
| Myocarditis and chronic interstitial nephritis | 3 | 4 | 1 | .. | 1 | .. | 2 |
| Esophageal stricture and anhydremia | 1 | 1 | .. | .. | 1 | .. | .. |
| | 460 | 556 | 71 | 281 | 83 | 4 | 92 |

Table 2 shows the diagnosis, number of cases treated, and the results obtained.

## CONCLUSIONS

1. Transfusion in infancy and childhood is a most valuable therapeutic remedy, and should be more generally used.

2. Cross-matching before each and every transfusion, with fresh specimens of blood, is the only safe method of blood matching.

3. Bloods should be cross-matched regardless of the age of the patient.

4. In patients who have been given transfusions with incompatible blood, exsanguination transfusion is indicated.

5. Too little emphasis is put on hemolysis reaction in blood matching.

6. The indications for transfusion are increased as more is learned of the beneficial effects of blood in disease.

7. Severe toxemias, as seen in severe burns, erysipelas, acute intestinal intoxication, toxic pneumonia, septicemia, infectious diarrhea, and carbon monoxide poisoning, are greatly benefited by exsanguination transfusion.

8. Long drawn out respiratory infections are greatly benefited, and their course shortened, by the giving of one or more transfusions.

9. Malnourished patients with secondary anemia begin to gain weight after a transfusion, without any change in diet.

15 North Fifth Street.

## ABSTRACT OF DISCUSSION

DR. CLIFFORD G. GRULEE, Chicago: The therapeutic measure of transfusion has not received as general a recognition as it should. Men from the South are much more prone to use transfusion extensively than we are in the West. Perhaps, it is because they have more severe cases of malnutrition as the result of conditions that occur there more often and more severely than they do with us. I agree with the author that matching the blood is far superior to typing. I always use matching. My experience has been largely with the citrate method and the use of blood intraperitoneally since we had difficulty with direct transfusion. One can use large quantities by this route and the danger is practically nil. It might be thought that by introducing the needle blindly into the abdominal cavity, one of the lower organs might be punctured. If the lower quadrant is chosen, there is practically no danger. I have had only two difficulties: In one instance we used the blood without matching it. The child died, not from the results of the transfusion, but from the severe infection that she had. The great omentum hung down like a thick curtain covered with fibrous material in which was a large amount of blood which was absolutely sterile on culture. It is a condition which I have never seen before and which I think must have been due to the fact that the bloods did not match. The second child had a severe upper respiratory infection, with lung abscess, which eventually proved to be due to a foreign body though we did not know it at the time. In this instance, two days after transfusion, the child developed generalized peritonitis and died. This was the result either of infection which had been there previously or else of the introduction of the blood, which may have created a locus minoris resistentiae. There was no evidence that we had introduced infection at the time of the transfusion. The peritoneal route, of course, is much simpler and can be used as often as one wishes. There is undoubtedly use for both the direct and the intraperitoneal transfusion. It is a very safe and effective therapeutic measure which can be used in a wide variety of cases.

DR. LUDO VON MEYSENBUG, New Orleans: I was glad to note that the number of transfusions that Dr. Sidbury has given by way of the longitudinal sinus was so small. It is wise to keep the number of intrasinus transfusions as few as possible. I happened to be the intern on Dr. Talbot's service, at the Massachusetts General Hospital, who did the first transfusion into the sinus at that hospital. Before I finished my service, we had abandoned it altogether, not because we had any disastrous results, but because the difficulties were very great. Dr. Grulee mentioned the larger number of transfusions done in the South as compared with his section of the country. I do not know about the rest of the South, but as far as New Orleans is concerned, I do not believe that we are doing enough of them. We ought to be doing a great many more, because there is no question but that transfusion is a valuable therapeutic measure for a large number of widely variant indications. I want to ask Dr. Sidbury what his experience has been in his blood typing with so-called isoagglutinins.

DR. WILBERT C. DAVISON, Baltimore: Blood transfusion is one of our best therapeutic measures. We have performed transfusion in a large number of children in the Harriet Lane Home since 1919, starting with those who were anemic and then gradually applying the procedure to other types of patients until, during the past year, transfusions have been used extensively in a wide variety of diseases when the children were not benefited by the ordinary methods of treatment. At the present time we are trying to analyze our results to see whether there are certain conditions which are benefited by transfusions and other conditions in which transfusions are of no value. In erysipelas, the mortality has been reduced 50 per cent by the use of blood transfusions.* This is also true in the late septicemia of scarlet fever. Some infants suffering from malnutrition and digestive disturbances, who have not been benefited by ordinary feeding methods and by intraperitoneal and intravenous injections of physiologic sodium chloride solution, have improved rapidly after blood transfusions while in others this treatment has been of no apparent value. At present we cannot distinguish the type of child which will be benefited by transfusion. The condition of about half of the children suffering from localized and disseminated pneumonia has improved after one or more blood transfusions. However, some infants who are extremely ill, especially those who are cyanosed, may become worse after transfusion, owing either to overloading of the circulation or to shock. The benefit which follows transfusion may be due to the hemoglobin content of the blood, to the antibodies which it may contain or merely to the fact that it is a viscous fluid, like gum arabic, which remains in the circulation. In regard to the technic, we have used citrated blood, intravenously, in amounts of from 10 to 20 cc. per pound of body weight. It is very important to match the blood of both the donor and the child rather than to group the blood. Even then reactions occur. We have had no serious reactions, but a transient rise of one or two degrees of temperature within thirty-six hours has not been infrequent, and I have seen two or three cases of hemoglobinuria. A Wassermann test should always be done, even though the blood is taken from the father or mother. Sinus punctures should be avoided. I have seen two children with hemorrhages over the cortex, and several cases of thrombosis of the cerebral vessels have been reported as a result of punctures of the longitudinal sinus.

DR. F. P. GENGENBACH, Denver: I should like to ask Dr. Sidbury to give us the criteria he uses in his exsanguination transfusion in deciding how much blood to withdraw.

DR. ROOD TAYLOR, Minneapolis: Transfusion is not always harmless, and it should not be our first step in the treatment of infantile diarrhea.

DR. J. C. GITTINGS, Philadelphia: Therapeutic milestones are rare, but transfusions of blood are worthy of that designation. I am willing to admit, of course, that cases should be selected carefully for transfusion, but the benefits frequently are unequivocal. With regard to intraperitoneal injections of blood, we had one experience last winter in which this was used and the child passed all of the blood by rectum a few minutes after the intraperitoneal injection. We spent a rather unpleasant seventy-two hours, but nothing else occurred. This accident does not happen often, but it has caused me to hesitate somewhat about the universal use of the intraperitoneal route. One type of case in which transfusions of blood are useful, and which has not been especially stressed in this discussion, is bacteremia. One patient at the University Hospital, who developed a mastoiditis following an otitis and subsequently had a blood stream infection with a hemolytic streptococcus and an effusion into the right hip, recovered completely after nine blood transfusions. It is too much to say that he would have died without them, but complete recovery in five weeks from an arthritis occurring during a streptococcal bacteremia certainly is unusual.

DR. JOHN W. GRAY, Newark, N. J.: I should like to ask Dr. Sidbury whether he considers hemolysis tests necessary before every transfusion. I agree with him that no hematologist can conscientiously pass on a donor without direct tests, as well as blood grouping. The discovery of minor groups by Guthrie and Huck in 1923 made this precaution necessary. However, I have felt that Moss' statement that hemolysis occurred only in the presence of agglutination still held true, with the possible exception in hemolytic diseases such as pernicious anemia. It is possible that some hitherto unexplained reactions can now be traced to the use of universal donors for other groups. Freeman and Whitehouse described a dangerous universal donor whose agglutinating strength was so high that if he had acted as donor for other groups the result would have been serious. In reviewing 500 transfusions which I have done, mostly in adults, I found less than 10 per cent reactions, but in forty of these cases in which universal donors were used for other groups, 33 per cent showed reactions. However, if only universal donors are available, direct titration tests will show whether they are safe or dangerous ones.

DR. C. ULYSSES MOORE, Portland, Ore.: Dr. Sidbury is to be commended for avoiding the injection of blood into the longitudinal sinus or into the peritoneal cavity. Two points

may well be emphasized further. The first is the subcutaneous injection of whole blood. Amounts comparable to physiologic sodium chloride solution by hypodermoclysis may be used, and the rate of absorption is visible. We use 50 cc. per kilogram of body weight in newly born infants and 25 cc. per kilogram in older infants. With this method the blood requires neither typing nor matching. Citrated blood absorbs more quickly and stimulates leukocytosis more rapidly than the uncitrated. We have used the subcutaneous route exclusively for five years except in cases demanding an immediate effect. In these of course the blood must be given intravenously. The second point is the life-saving value of subcutaneous blood with premature infants, melena neonatorum, and other conditions. One injection of 50 cc. per kilogram is usually adequate. By the giving of blood, a greater proportion of 2 and 3 pound babies can be saved.

DR. J. B. SIDBURY, Wilmington, N. C.: We have not had auto-agglutination occur in any cases. This test has been applied very infrequently by us. In regard to exsanguination transfusion—how much blood to take out and how much blood to put in—my experience has been limited to four or five patients. One of these was a boy, aged 8 years. I took out as much as the pulse rate and general condition would permit—240 cc., at one time, and 260 cc. at another. The other patient was a child with toxic pneumonia, 28 months old. After we had taken out 100 cc. of blood by way of the external jugular vein, the transfusion was started, the internal saphenous vein being used. We took out 500 cc. of blood and put in 550 cc. We realized that we were taking out some of the donor's blood, but this seemed to be the only practical way of doing a satisfactory exsanguination. We put in 50 cc. more blood than we took out. This method of transfusion is indicated in selected cases only, and in our hands has given most satisfactory results. Since 1925, both hemolysis and agglutination tests have been performed in every case in which transfusion was done. Before this time, only the agglutination test was done.

## PREPARATION OF LACTIC ACID MILK MIXTURES FOR INFANT FEEDING*

McKIM MARRIOTT, M.D.
ST. LOUIS

Whole undiluted lactic acid milk, enriched with commercial corn syrup, was originally introduced as a satisfactory food mixture for athreptic infants.[1] A further experience, however, has led to the conclusion that such formulas are excellently adapted to the routine feeding of normal infants.[2] The type of feeding described does not lead to gastro-intestinal disturbances, even in young and undernourished infants. The composition of the formula does not have to be changed during a large part of the first year, the infant merely being offered increasingly larger amounts of the same food mixture as he becomes older. The caloric value is high (from 25 to 30 calories an ounce), and because of this fact a smaller number of feedings during the day is necessary, and malnutrition due to underfeeding does not occur.

An experience of eight years with the feeding of several hundred infants in welfare clinics in practice and in the hospital has served to convince us that there are no disadvantages to the routine and prolonged use of lactic acid milk so far as the infants are concerned. For a number of years it has been our practice to use a single formula for more than 95 per cent of infants under 1 year of age treated in the hospital and clinic, the formula consisting of undiluted whole lactic acid milk to which has been added one tenth of its volume of Karo Corn Syrup. The babies have been given about all their appetites demanded at four hour intervals. No more than five feedings a day have usually been necessary after 1 month of age and often not more than four feedings after the age of 3 months. After the infants have begun to take appreciable amounts of additional carbohydrate in the form of cereal, during the second half year, the amount of sugar added to the milk has been correspondingly reduced and by the age of 1 year or 14 months entirely omitted. Otherwise no changes in the formula have ordinarily been made or found necessary for either sick or well infants.

The chief drawback to the routine use of lactic acid milk has been the difficulty in preparation. In many parts of the country it is impossible to obtain from dairies a satisfactory whole lactic acid milk. The home preparation with bacterial cultures presents difficulties and, although satisfactory in the hands of an intelligent mother, it is hardly a method suitable for general use.

The preparation of lactic acid milk by the addition of lactic acid to sterilized milk has been suggested by Greenthal[3] and by Marriott and Davidson.[2] It has been shown that milk so prepared is about as suitable for infant feeding as the bacterially soured milk.[2] The amount of lactic acid originally recommended was 1 drachm (4 cc.) of U. S. P. lactic acid to a pint (500 cc.) of milk. This is a maximum amount and is somewhat excessive for use with most milk as delivered, which already contains some lactic acid. It has been found preferable, as a routine, to use only three fourths of the amount of lactic acid originally advised; that is, to use three-fourths drachm (3 cc.) to the pint (500 cc.), or 1½ drachms (6 cc.) to the quart (1,000 cc.). According to this method it is necessary first to sterilize the milk by boiling and then cool thoroughly before adding the acid, which latter must be introduced gradually in order to prevent the formation of large curds. The best results are obtained when the milk is boiled for a considerable time, but this results in concentration and the formation of a troublesome scum.

### EVAPORATED MILK

The use of unsweetened evaporated milk instead of ordinary cow's milk for the preparation of lactic acid milk formulas possesses a number of advantages. Such milk has already been completely sterilized and heated sufficiently so as to insure the formation of very fine curds when the acid is added. It has a slightly lower buffer value than ordinary cow's milk because of the conversion of a part of the calcium and phosphate into the form of insoluble calcium phosphate. The fat present has been homogenized, so that it does not separate out as butter fat after the addition of acid, even though shaken or stirred. Furthermore, evaporated milk is easily obtainable and is cheap.

*Evaporated* milk is merely whole cow's milk from which about one half of the water has been separated. It is homogenized and sterilized. *Evaporated* milk is not to be confused with sweetened *condensed* milk, which is not sterile and which is preserved by the addition of a large amount of cane sugar. Sweetened con-

* From the Department of Pediatrics, Washington University School of Medicine and the St. Louis Children's Hospital.

1. Marriott, McKim: The Artificial Feeding of Athreptic Infants, J. A. M. A. **73**: 1173 (Oct. 18) 1919.

2. Marriott, McKim, and Davidson, L. T.: Acidified Whole Milk as a Routine Infant Food, J. A. M. A. **81**: 2007 (Dec. 15) 1923.

3. Greenthal, R. M.: The Rôle of Acidified Milk in Infant Feeding, J. Michigan M. Soc. **22**: 9 (Jan.) 1923.

densed milk is entirely unsuitable for the preparation of infant feeding formulas.

In using evaporated milk for the preparation of lactic acid milk formulas the usual dilution is 1:1, as evaporated milk is approximately doubly concentrated. To the half diluted milk 10 per cent by volume of Karo Syrup is added and then ten drops of lactic acid U. S. P. to each ounce of evaporated milk used in the mixture, or five drops to each ounce of the final mixture.

The proportions of milk, water and sugar may, of course, be varied if desired, but the proportion between lactic acid and milk should be maintained.

A preferable method of preparing the formulas and one that we have generally used consists in the mixing of evaporated milk with an equal volume of an acid-sugar mixture. The formula which we have used almost as a routine is prepared as follows:

*Acid-Sugar Solution*

| | | |
|---|---|---|
| Karo Corn Syrup (brown)..... | 90 cc. | 3 oz. (6 tablespoonfuls) |
| Lactic acid, U. S. P..... | 5 cc. | 1 teaspoonful |
| Water .....to | 450 cc. | 1 pint |

The syrup is mixed with some water, the lactic acid added, and the whole made up to the final volume. The mixture should, if possible, be kept in a cool place, but on account of its high acid content it keeps perfectly for one or two days even at ordinary temperatures.

In making up the feedings, equal parts of unsweetened evaporated milk and the acid-sugar solution are mixed. This is done by pouring the acid solution into the milk, which is then mixed by stirring or shaking. An entire day's feeding may be prepared at one time, or, as is often more convenient when traveling, a single small can of evaporated milk may be opened fresh for each feeding, the feeding bottle being half filled with the milk and the acid-sugar solution then poured in. The bottle then needs merely to be shaken, warmed to body temperature, and is ready for feeding.

The formula given is the usual one for babies during the first six or eight months. It can, of course, be varied in individual instances. The amount of sugar is decreased after cereal is taken. The formula as prepared is equivalent to whole lactic acid milk with approximately 10 per cent added sugar. The fuel value is 30 calories per ounce.

This simple method of preparing lactic acid milk feedings was originally devised for use while traveling. It worked out so well that we have for some time past recommended it as a routine feeding throughout the year and have found it to be of especial value during the warm weather and in the hands of ignorant people. There is practically no chance of making a mistake, and if reasonable cleanliness is used there is no danger of producing diarrhea.

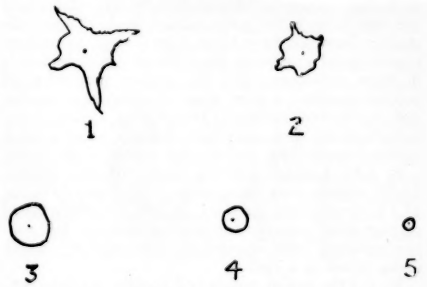
Such formulas are far safer than those prepared from a questionable milk supply. All evidence goes to show that the fat soluble vitamins A and D and the B vitamin are not injured by the processes employed in the preparation of evaporated milk. The antiscorbutic vitamin C, however, is destroyed and it is essential that the formulas given be supplemented with orange juice or tomato juice daily. It is also advisable as in the case of any artificially fed infant, especially during the winter months, to administer as much as one teaspoonful of cod liver oil each day in addition to the milk mixtures.

# SKIN TESTS IN PATIENTS WITH ASTHMA*

JAMES S. McLAUGHLIN, M.D.
PHILADELPHIA

A cutaneous reaction in a hypersensitive individual was first discovered by Blackley in 1873. This important discovery, neglected by the profession for the next forty years, was revived about fifteen years ago and placed on a firm clinical basis by Cooke, Walker and others. It is based on the fact that those substances which, when inhaled or taken into the body by some other means, are capable of producing asthma will also produce an urticarial wheal when brought into contact with the lower layers of the epidermis.

This report covers such tests performed in the Asthma Clinic of the Jefferson Hospital and in private practice for the last six years. All asthma patients coming to the clinic are tested as a matter of routine with about twenty-four different substances. Some new ones were added and some old ones, whose importance was not great, have been dropped from time to time. A complete set of all those substances which have been known to produce asthma and others suspected of producing asthma, particularly substances




Urticarial wheals: 1, marked ++++; 2, marked ++; 3, moderate +; 4, slight; 5, negative. The diameter of 3 represents one-half inch.

encountered in certain occupations, are at hand for testing when specially indicated. An effort has been made to confirm all positive reactions by retesting with the same substance at a second or third visit. Any substance that failed to react each time was considered negative.

In our studies, the intradermal method of testing was used exclusively. The extracts were made with the solution prepared after the method of Coca. From 0.01 to 0.02 cc. is injected intradermally, preferably in the outer aspect of the arm, and the result read in from ten to fifteen minutes. A reaction showing an urticarial wheal with pseudopod formation was considered marked or ++. A moderate or 1+ reaction consisted of an urticarial wheal at least half an inch in diameter without pseudopods. Slight reactions were considered negative except when dilute extracts were used. Stronger solutions were tested, and then if an increase in reaction did not occur, they were considered negative.

* From the Department of Applied Immunology, Jefferson Hospital.
* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

The danger of constitutional reactions in intradermal testing is well known. When an intradermal test is done, a certain definite amount of the substance to be tested is injected into the skin of the patient. This acts exactly like a subcutaneous injection. Since it is possible to get certain substances in a very concentrated solution, it is easy to inject enough of the substance in the skin test dose to produce constitutional symptoms, such as asthma and urticaria, and in one reported case, a sufficient quantity was injected to produce death. For this reason, substances are used in diluted form and even the slightest possible reaction to the diluted extract calls for a confirmatory test with the strong solution. In the present report I have considered all reactions strongly positive which gave a marked reaction to the ordinary dilutions. When it was necessary to use a concentrated extract to get a positive reaction, the patient has been considered as moderately sensitive.

Generally speaking, there are two varieties of substances used in skin testing: first, all those substances which react strongly in dilute solutions, often inconceivably dilute; these are substances which are likely to produce constitutional symptoms when tested in strong solution, and include the pollens, animal danders and orris root. Second, those in which the strongest extract possible in cutaneous testing is used; often, as in feather extracting, two or three batches of feathers are run through the same extract fluid. These substances, however, have never been known to produce constitutional symptoms from the skin test, and it is in these substances that the greater proportion of positive reactions, a great many of which have no clinical significance whatever, are obtained. This group includes house dust, goat hair, feathers, tobacco, some cereals, notably rice, and a great many of the foods.

In 1,281 patients suffering from bronchial asthma, 23,725 routine tests were made. Of these, 2,780, or 11.3 per cent, were positive. In 188 completely tested patients there was only one positive reaction; 169 positive reactions were obtained to substances not in the group tested as a routine.

By far the largest number of positive reactions was obtained from house dust. This can partly be explained by the fact that the dust which is gathered, usually in a vacuum cleaner from the bedroom, contains feathers, orris root and cottonseed, which substances gave many positive reactions. While this explains some dust reactions, the fact that 126 patients completely tested gave positive reactions to dust alone shows that there are one or more active substances in dust which have not been isolated in a pure form.

Ragweed pollen tests gave positive reactions in 20 per cent of the patients tested. This figure includes the seasonal asthmas but not hay-fever cases showing no asthma. The diagnostic value is dependent on the history of clinical evidence during the pollen season. Positive reactions to ragweed pollen are nearly always important.

Goat hair elicited positive reactions in 18 per cent. This large number cannot be explained. Goat hair has been used in pillows, but in the present series there were no patients who were in contact with this substance. It is not of any great value.

Chicken, duck and goose feathers gave a fairly large percentage of positive reactions. We believe that the number of positive reactions is dependent to a great extent on the extract, for in our experience it is difficult to obtain a strongly potent solution. Clinically, these reactions are very important, since it is in patients sensitive to feathers alone that such startling results are obtained when the feathers are eliminated.

Pepper seems unimportant clinically; yet many (13 per cent) gave positive reactions, and in one person it was a very decided cause of asthma.

Wool is in the same class as goat hair, and is wanting in clinical importance. It caused positive reactions in 12 per cent of the patients tested, and yet I am unable to say that it has been the cause of asthma in any individual.

Orris root, found in nearly all face powders, gave positive reactions in 11 per cent, and is usually diagnostically important.

Positive reactions are not so frequently obtained with the animal danders, but when they are these danders are very often a true cause of asthma. It is with patients sensitive to these substances that we often have remarkably good results. In this group, cat dander gave the greatest number of positive tests, 8.4 per cent; horse gave 6 per cent; dog, 4.4 per cent, and rabbit, 2.5 per cent. Rabbit hair is used in pillows and for stuffing mattresses and furniture.

TABLE 1.—*Reactions to Routine Tests*

| Atopen | No. of Tests | Percentage Positive |
|---|---|---|
| House dust | 1,186 | 63% |
| Ragweed pollen | 1,176 | 20% |
| Chicken feathers | 1,094 | 19% |
| Duck feathers | 1,289 | 17.6% |
| Goose feathers | 1,085 | 14.6% |
| Goat hair | 865 | 18% |
| Pepper | 371 | 13% |
| Wool | 147 | 12% |
| Orris root | 1,160 | 11% |
| Rice polish | 912 | 10% |
| Wheat | 939 | 8.8% |
| Cat dander | 1,083 | 8.5% |
| Tobacco | 874 | 8% |
| Pyrethrum | 932 | 7% |
| Cornmeal | 923 | 7% |
| Oat | 899 | 6% |
| Rye | 156 | 6% |
| Horse dander | 1,122 | 6% |
| Grass pollen | 1,973 | 5.6% |
| Flaxseed | 789 | 4.8% |

Less Than 5% Positive

| Atopen | No. of Tests | Percentage Positive |
|---|---|---|
| Dog dander | 1,080 | 4.4 |
| Buckwheat | 908 | 3.4 |
| Cottonseed | 875 | 2.6 |
| Horse serum | 643 | 2.6 |
| Rabbit dander | 1,036 | 2.5 |
| Mustard | 218 | 2.4 |
| Silk | 101 | 2.4 |
| Fish glue | 818 | 0.7 |

Grass pollen gave positive reactions in 5.6 per cent. A seasonable asthma or seasonal aggravation of asthma with positive reactions indicates treatment with pollen. In comparison with the ragweed pollen tests it will be seen that the grass pollen was one-fourth as frequently positive, it being borne in mind that the seasonal asthmas are included in both groups.

The cereals are frequently positive, especially rice polish and wheat, but I find that they are not often a cause of asthma. Rice polish gave the highest percentage (10 per cent positive reactions) in this group, and there was no instance in which it was definitely established as a cause of asthma. On the other hand, buckwheat gave the smallest number of positive reactions (3.4 per cent) but in nearly every instance was an important factor. Wheat and cornmeal were also responsible for some of the asthma.

Pyrethrum and tobacco gave many positive reactions, but few had real clinical significance. Pyrethrum is the ingredient in most insect powders.

Flaxseed often gives positive reactions, nearly 5 per cent, without clinical contact. This is because early in the series it was tested in full concentration. After a few constitutional reactions it was greatly diluted and so gives fewer reactions. It is very important as an etiologic factor in such occupations as chicken raising, because it is used as an ingredient in most chicken feed mixtures.

Cottonseed is next in order of frequency, giving 2.9 per cent positive reactions. Practically always it can be considered a causative factor. A few patients have been found extremely sensitive to this substance, so that in routine testing a very dilute extract is used. Cotton mattresses, especially the cheaper grades, have considerable cottonseed in them.

TABLE 2.—*Single Positive Tests*

| Atopen | No. of Tests | No. Positive | Percentage Positive | Atopen | No. of Tests | No. Positive | Percentage Positive |
|---|---|---|---|---|---|---|---|
| House dust | 1,186 | 126 | 10.6 | Grass pollen | 1,073 | 3 | 0.3 |
| Chicken feathers | 1,094 | 10 | 1.0 | Tobacco | 874 | 3 | 0.3 |
| Duck feathers | 1,289 | 3 | 0.2 | Ragweed pollen | 1,176 | 2 | 0.2 |
| Goose feathers | 1,085 | 2 | 0.2 | Dog dander | 1,080 | 2 | 0.2 |
| Pepper | 371 | 4 | 1.0 | Pyrethrum | 912 | 2 | 0.2 |
| Orris root | 1,160 | 7 | 0.6 | Cornmeal | 923 | 2 | 0.2 |
| Wheat | 969 | 5 | 0.5 | Rice polish | 912 | 2 | 0.2 |
| Goat dander | 865 | 4 | 0.5 | Oat | 899 | 2 | 0.2 |
| Cat dander | 1,083 | 4 | 0.4 | Glue | 818 | 1 | 0.1 |
| Flaxseed | 898 | 3 | 0.3 | Horse dander | 1,122 | 1 | 0.1 |
| Totals | | | | | 19,719 | 188 | |

Horse serum caused positive reactions in 2.6 per cent. It is used as a routine test. When positive, the patient is warned of the danger of any future injections of horse serum.

One patient was extremely sensitive to mustard. Positive reactions were obtained in 2.4 per cent.

Silk has been tested in a number of patients, with few positive reactions. In these few there was an etiologic relationship to the asthma.

Fish glue is of great importance when positive, but is infrequently positive, reactions having been obtained in only 0.7 per cent.

In the table of single tests are listed in the order of frequency those substances which gave the only positive reaction in completely tested patients. Those not completely tested were excluded. It will be noted in this table that those substances which are tested in the strongest possible concentration predominate; namely, house dust, feathers, pepper, tobacco, goat and wheat. I believe that the concentrations of the solutions used play a great part in producing these reactions. Of all the pepper and goat reactions obtained in the whole series, only one was considered indicative of causal relationship to the patient's asthma. I do not believe that the rest are of any clinical importance at all. One possible explanation of the high percentage of positive reactions in concentrated solutions is that, in those solutions that are high in nitrogen content, some of the protein undergoes a change either before or after being placed in solution, as the result of which peptone, histamine or other substances of this group which are known to produce skin reactions in normal skins are present. That such reactions are not produced in every skin is probably due to the weak concentration of the substances in the solution and the varying degrees of sensitiveness of the skin.

How to separate such reactions from those which are of importance is very difficult and often impossible. The clinical history and continued observation are often necessary to decide the question. In the present series the clinical importance of these reactions can be verified in many patients without a question of doubt—chiefly those in whom a positive reaction to feathers and house dust was obtained. In others the lack of importance of these reactions is easily demonstrable. This is often the case with dust. There is, however, a vast group of patients in whom it was not possible to decide whether the reactions are of any importance whatever, and for this reason I do not feel that I can quote statistics. Another complicating factor in interpreting skin reactions is that the reaction may be positive and the substances actually causing definite symptoms; but such symptoms may not be asthma. This is frequently noted in the food and drug cases. For example, I have seen an asthmatic individual with a positive reaction to egg become extremely sick with urticaria and gastro-intestinal symptoms from eating egg; but such symptoms were not accompanied by asthma. In the last analysis the skin reaction means that the skin is sensitive, simply this and nothing more.

There were many substances, among them the foods that were well known to produce asthma in certain patients which were not included in the routine tests. Early in the series the routine tests with foods were made, and quite a large number of persons gave positive reactions, most of which were not of significance in the causation of the asthma. I have found, except in children, that the knowledge that a certain food causes asthma is far from a new idea to the patient. In the present series, table 3 gives the number of patients reacting to the various foods. It is often difficult to decide whether a given food has caused asthma or not, because, as has been seen, the vast majority of our series have given multiple skin reactions, and a great many have had definite multiple causatives for their asthma. However, there have been very few restrictions in diet, and most of these have been temporary, the food being eaten again without increasing the severity of the asthma. The most important food causing asthma is egg. This is often unrecognized because egg forms a part of one's daily dietary.

TABLE 3.—*Individual Tests*

| Atopen | + | ++ | Atopen | + | ++ |
|---|---|---|---|---|---|
| Meats | 26 | 5 | Cow dander | 1 | .. |
| Vegetables | 22 | 8 | Ragweed pollen group | 9 | 61 |
| Fruits | 10 | 5 | Grass pollens | 8 | 9 |
| Nuts | 10 | 3 | Tree pollens | 11 | 2 |
| Chocolate | 6 | .. | Hops | 9 | 4 |
| Coffee | 5 | .. | Lamb quarters | 6 | 6 |
| Tea | .. | 1 | Plantain | 2 | 7 |
| Milk | 5 | 1 | Sorrel | 2 | 5 |
| Fish | 7 | 2 | Ipecac | .. | 2 |
| Egg | 3 | 4 | Acetylsalicylic acid | 0 | .. |
| Totals | | | | 12 | 125 |

Of the positive pollen reactions, other than grass and ragweed, the majority have produced hay-fever and not asthma, even in those who are asthmatic from other causes. However, I have seen true asthma develop from oak pollen and possibly from some others. I feel that if the crop of oak pollen in the vicinity of Philadelphia were greater, more asthmatic symptoms might arise from this source.

Acetylsalicylic acid is a great exception to the rule that a substance producing asthma will also produce a positive skin reaction. Those sensitive to acetylsalicylic

acid, as has been shown by Dr. Cooke, who became asthmatic without urticaria after taking this drug, have not given a skin reaction. All patients in this series sensitive to acetylsalicylic acid come under this heading.

SUMMARY

This report contains the numbers and percentages of positive reactions in our series of asthma cases, including clinic and office patients. The testing has been done as a matter of routine and without any special purpose in view. There have been a large number of patients with many reactions, the clinical significance of which I have tried to point out.

It must be remembered that, while the skin test is a valuable aid, it is not the most important diagnostic study of asthma. The actual clinical contact with the offending substance as determined from the history is more important. A positive reaction merely means that the skin is sensitive, so that the physician must still call on his intelligence to interpret the reactions.

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## FACTORS GOVERNING THE TREATMENT OF ASTHMA*

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My purpose is to give the results obtained in the cases reported in the papers of Dr. McLaughlin and of Dr. Stout.

The treatment may be best described under four headings: specific, surgical, vaccine and drug.

Specific treatment was given to all patients in whom positive skin reactions were obtained. Specific treatment consists in the elimination of the substance giving the skin reactions from the patients' surroundings, or in a series of hypodermic injections of the substance itself, designed to lower the patient's hypersensitiveness to the substance. This is known as hyposensitization, and it should be borne in mind that it is only partial and temporary and not curative.

There are very definite limits to hyposensitization. For example, it is possible to treat a horse-sensitive individual so that he is able to ride horseback without any symptoms. Such a person, however, would not be able to spend his entire time in a stable currying horses. In some individuals, the relief afforded by hyposensitization is not sufficient to be of clinical value to them. Fortunately, such cases are not common.

When the complete elimination of the substance from the sufferer's surroundings is possible and permanent, the result will be perfect, provided, of course, there are no other causative factors in the case.

Unfortunately, however, complete elimination is often neither possible nor feasible, and we are forced to use a combination of elimination and hyposensitization. This method has been used frequently in the present series. Since elimination is completely left to the patient, its importance should be stressed repeatedly, and the individual should not be allowed to believe that the injections are curative. Often, it is only by the combined efforts of hyposensitization and elimination that any headway is made.

It hardly seems fitting that a mere internist should discuss surgical treatment before surgeons. However, we have been impressed with the importance of infection in the accessory sinuses and the difficulties encountered in its diagnosis and treatment. We feel that a chronic infection, no matter how mild or how localized, is of great importance. The location of infection seems to be of great significance. Antrum and ethmoid infection is more often encountered than frontal and sphenoid infection. The relationship between the infection and the asthma is not understood. It may be reflex, because evacuation of pus from a sinus will often produce results equivalent to those obtained from epinephrine. Pus under pressure in a small ethmoid cell will cause more discomfort than a freely draining antrum.

Reflex asthma, as usually understood to mean pressure of nondiseased tissues, is rarely seen. The nasal surgery which we advise is that directed to the eradication of infection and the correction of those deformities which predispose to infection.

Vaccine therapy has been employed in those cases in which we have been unable to find either skin reactions or infection. It has also been used in most of the frankly infected cases. Much more stock vaccine has been employed than autogenous.

Almost all of those patients who do not do well on the treatment outlined are given iodides by mouth. The drug is very effective in some and we consider it an efficient aid in the stubborn cases. Stramonium inhalations, epinephrine and lately a little ephedrine have been used for relief, and a number of other drugs have been tried and abandoned from time to time.

TABLE 1.—*Results of Treatment in All Cases Studied*

| | Entire Series | Clinic | Private Practice (26.4% of series) |
|---|---|---|---|
| 0 | 14.5% | 15.2% | 12.4% |
| + | 23 % | 25.1% | 17.5% |
| ++ | 41.7% | 39.7% | 47.5% |
| +++ | 20.8% | 20.0% | 22.6% |
| Number of cases.. | 882 | 649 | 233 |

This report is based on the study of 1,191 cases of bronchial asthma from clinic and private practice, in 882 of which sufficient treatment was given for us to form an idea of the results. We have been rather liberal in our diagnosis of asthma, and have included all those cases presenting more or less paroxysmal dyspnea with characteristic râles as asthma. We feel that the dyspnea seen in emphysema and chronic bronchitis, when paroxysmal in character and not associated with exertion, is truly asthmatic in its pathologic physiology.

In estimating the results of treatment we have been guided by the patient's own statements made at each visit. Patients are not included in the treated series who did not take treatment faithfully for at least one month, the majority being under observation for more than a year.

The treatment as outlined previously has been administered as common sense and clinical judgment indicated, and the results represent not ideal treatment but what can actually be accomplished in practical work in the clinic and in private practice. The results are influenced by the patient's cooperation and the ability to cooperate. Stupidity, poverty and carelessness in either patient or physician are decided handicaps. Often the cure is worse than the disease, and this is especially true when the disease is mild. Such patients, finding an

* From the Asthma Clinic, Jefferson Hospital.
* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

absolute cure impossible, try treatment for a while and soon lose interest.

For statistical purposes all asthma sufferers have been included, and the results in each rated as 0, +, + + or + + +, the + + + indicating those whose asthma is completely or almost completely relieved. 0 and + represent the unsatisfactory, and + + and + + + the satisfactory results.

The results for the entire series and for private practice are shown in table 1.

It will be noticed that the number of 0 and + + + results are practically the same, the chief difference being in the + and + + groups. This is attributed to a better understanding of the principle of elimination and a better economic status, which makes the elimination more nearly perfect.

TABLE 2.—*Effect of Age on Treatment*

| | Standard | 0–5 Years | 6–20 | 21–35 | 36–50 | 51 + |
|---|---|---|---|---|---|---|
| 0 | 14.5% | 0% | 6.9% | 10.4% | 19.2% | 21.6% |
| + | 23.0% | 28% | 16.4% | 21.2% | 25.6% | 31.7% |
| + + | 41.7% | 36% | 41.5% | 43.2% | 38.7% | 38.9% |
| + + + | 20.8% | 36% | 35.2% | 25.2% | 16.5% | 7.8% |
| Bad | 37.5% | 28% | 23.3% | 31.6% | 44.8% | 53.4% |
| Good | 62.5% | 72% | 76.7% | 68.4% | 55.2% | 46.7% |
| Number in each group | ..... | 25 | 159 | 250 | 261 | 167 |

We have tried to determine the influence of certain factors on the result of treatment by noting the results obtained in the persons in whom such factors appeared. Such results are then compared to the "standard" results, which are those just given for the entire series. Most of these factors have been noted by others and their conclusions agree with ours. The surprise is that the results are so little influenced by the factors.

Before going further it must be remembered that asthma is a self-limited disease, and that the limits have so far evaded all efforts at classification. While it is essentially a chronic disease, running a long and irregular course, nevertheless there is a spontaneous cure. This cure can be more confidently expected in those developing asthma in childhood. Such spontaneous "cures" are included in our series. We do not know how we can exclude them nor do we know how many there are. Our experience leads us to believe that the percentage is not great.

TABLE 3.—*Influence of Duration of Disease on Subsequent Treatment*

| | Standard | Less Than 1 Year | 1–5 | 6–20 | 21 + |
|---|---|---|---|---|---|
| 0 | 14.5% | 17.9% | 10.7% | 15.0% | 19.3% |
| + | 23.0% | 25.4% | 22.6% | 28.5% | 29.8% |
| + + | 41.7% | 35.8% | 41.5% | 39.1% | 29.8% |
| + + + | 20.8% | 20.9% | 25.2% | 17.4% | 21.1% |
| Bad | 37.5% | 43.3% | 33.3% | 43.5% | 49.1% |
| Good | 62.5% | 56.7% | 66.7% | 56.5% | 50.9% |
| Number of cases | ..... | 67 | 234 | 253 | 57 |

The most important factor influencing treatment is the age of the patient. Table 2 gives the results, which are quite as one would expect.

Table 3 gives the influence of the duration of the disease before treatment was undertaken.

Table 3 is not according to preconceived ideas, the most surprising thing being the poor results in those cases seen early in the course of the disease. Next in importance is the high percentage of + + + in the long standing cases. Is this a manifestation of an inevitable law of asthma prescribing certain limits to the disease?

The menstrual function in women is recognized as an aggravant to asthma, and the effect of the climacteric is thought to be unfavorable. Table 4 nevertheless shows that slightly better results were obtained in women than in men.

TABLE 4.—*Influence of Sex on Treatment*

| | Standard | Male | Female |
|---|---|---|---|
| 0 | 14.5% | 14% | 15.0% |
| + | 23.0% | 25% | 20.5% |
| + + | 41.7% | 39% | 45.2% |
| + + + | 20.8% | 22% | 19.3% |
| Bad | ..... | 39% | 35.5% |
| Good | ..... | 61% | 64.5% |
| Number of cases | ..... | 504 | 374 |

The effect of a positive skin reaction is decidedly favorable, as the results in table 5 show. The skin reactions have been divided into those that are frankly and those that are only moderately positive. The former, in the majority of instances, indicate true hypersensitive factors to which the patient is exposed. The latter undoubtedly contain many skin reactions which are of no clinical importance, although some moderate reactions indicate true hypersensitiveness.

The effect of infection is given in table 6. We have included in this series patients with polyps and pus in the nose if accompanied by positive transillumination of a sinus, and all those having roentgen-ray evidence of infection in the nasal sinuses, teeth or lower lobes of the lungs.

TABLE 5.—*Relation of Positive Skin Reaction to Result of Treatment*

| | Standard | Negative* | "Moderate" | "Marked" | Positive |
|---|---|---|---|---|---|
| 0 | 14.5% | 18.8% | 16.0% | 10.7% | 12.2% |
| + | 23.0% | 35.2% | 22.8% | 18.3% | 19.6% |
| + + | 41.7% | 35.7% | 44.2% | 43.5% | 43.7% |
| + + + | 20.8% | 10.1% | 17.0% | 27.5% | 24.5% |
| Bad | 37.5% | 54.0% | 38.8% | 29.0% | 31.8% |
| Good | 62.5% | 45.8% | 61.2% | 71.0% | 68.2% |
| Number of cases | ..... | 207 | 188 | 469 | 657 |
| Per cent of total | ..... | 25.1% | 22.5% | 52.4% | 74.9% |

Percentage with positive reactions, 74.9.
* Tested with at least ten of the most important substances.

The evil influence of polyps is proverbial, and they are listed separately in the table.

We feel that these figures need a word of explanation. Nasal treatment was administered by a number of different surgeons, many of whom had very decided ideas on the treatment of asthma. This was particularly true from four to six years ago, and has since been corrected to a large extent by giving one man (Dr. Stout) complete responsibility for treating cases of asthma seen in the clinic.

TABLE 6.—*Effect of Infection*

| | Standard | Infection | Polyps |
|---|---|---|---|
| 0 | 14.5% | 18.8% | 14.8% |
| + | 23.0% | 26.5% | 30.0% |
| + + | 41.7% | 39.0% | 43.0% |
| + + + | 20.8% | 15.7% | 11.1% |
| Bad | 37.5% | 45.3% | 45.7% |
| Good | 62.5% | 54.7% | 54.3% |
| Number of cases | ..... | 223 | 81 |

We do not feel that ideal conditions will exist until the nose treatments can be given in the asthma clinic, patients to be referred to the nasal department only when operative work is needed.

Many of these patients need both specific and surgical treatment, and the course is likely to be long and dis-

couraging. We believe that much better results than those just shown can be obtained when it will be possible for the surgeon and physician to consult frequently over each patient.

The influence of combined infections and hypersensitive factors is given in table 7. It will be seen that infection brings the hypersensitive case almost within the prognostic limitations of the purely infectious case. This does not mean that the hypersensitive factor can be disregarded in an infectious case. These patients were treated by both methods, and it is to this that we attribute the decided increase in + + + cases in the combined over the infectious only group.

When neither infection nor hypersensitiveness can be demonstrated, our ignorance is sublime and our results much poorer. It is encouraging that we made any progress at all, and such as it is can be ascribed to vaccine therapy and iodides.

TABLE 7.—*Influence of Combined Infectious and Hypersensitive Factors*

| | Standard | Hypersensitive Only | Infectious Only | Both | Neither |
|---|---|---|---|---|---|
| 0 | 14.5% | 10.3% | 21.0% | 17.6% | 16.4% |
| + | 23.0% | 19.1% | 25.9% | 26.7% | 37.3% |
| ++ | 41.7% | 47.9% | 44.5% | 35.9% | 35.8% |
| +++ | 20.8% | 22.6% | 8.6% | 19.7% | 10.5% |
| Bad | 37.5% | 29.4% | 46.9% | 44.3% | 53.7% |
| Good | 62.5% | 70.5% | 53.1% | 55.6% | 46.3% |
| Number of cases | .... | 194 | 81 | 142 | 67 |

The roentgenogram of the lung seldom is considered perfectly normal in asthmatic patients. There is, of course, a certain percentage of tuberculosis, in the majority of cases well healed. In many, peribronchial thickening and enlarged root shadows are found.

Table 8 shows that the results in such cases correspond very closely to the standard figures for the series. Another condition, about which Drs. Manges and Hawley will speak in detail, is infection in the lower lobe. While the series is small (only thirty-six cases), it points very definitely to a poor prognosis.

TABLE 8.—*Results of Treatment in Cases Showing Evidence of Tuberculosis*

| | Standard | Root Shadows and Peribronchial Thickening* | Lower Lobe Infection |
|---|---|---|---|
| 0 | 14.5% | 10.2% | 25.0% |
| + | 23.0% | 26.2% | 22.2% |
| ++ | 41.7% | 46.6% | 36.1% |
| +++ | 20.8% | 17.0% | 16.7% |
| Bad | 37.5% | 36.4% | 47.2% |
| Good | 62.5% | 63.6% | 52.8% |
| Number of cases | ..... | 88 | 36 |

* Increase in root and peribronchial shadows only; no other signs of disease in roentgenogram of lung.

### CONCLUSIONS

The most important factor in the prognosis of bronchial asthma is the age of the patient, the best results being obtained between 5 and 15 years. With increasing age, the results become less good. The duration of the disease seems to be of little importance.

Sex is not an important factor.

Patients with positive skin reactions offer the most favorable prognosis. A complicating infection greatly lowers the expectancy.

Those with infection do not do as well as those with skin reactions alone, but offer a much better prognosis than those in whom neither infection nor hypersensitiveness can be demonstrated.

Peribronchial thickening and enlarged root shadows as seen in the roentgenograms have little effect on the prognosis. Those in whom a roentgen-ray diagnosis of infection in the lower lobes is obtained give results decidedly poorer, although not as poor as those in whom infection cannot be demonstrated.

334 South Twenty-First Street.

## NOSE AND THROAT OBSERVATIONS IN EXAMINATION OF PATIENTS WITH BRONCHIAL ASTHMA*

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Four years ago the chief of the Asthma Clinic arranged with a member of the laryngeal staff (Dr. C. F. Moore) to examine in the Asthma Clinic each patient's nose, throat and ears, thinking that by this method infections and abnormalities of the nose, throat and ears would be immediately detected and proper treatment could be started without delay. For the last three years I have done this work. Treatments of the nose and throat are not, however, given in the Asthma Clinic, but all patients requiring such treatments are referred to the laryngeal department under Dr. Fielding O. Lewis, at whose request all these asthma patients are again referred to me. In this way a more careful follow-up system was established, and the increasing percentage of improvements in these patients argues favorably for this procedure.

This study is made from the examination of a rather large series of patients with bronchial asthma. In the Asthma Clinic we have gradually gathered together the paraphernalia and instruments necessary for a careful examination of the nose, throat and ears, including a dark room for transillumination, an otoscope, nasopharyngoscope and antrascope. The use of the nasopharyngoscope has been a great help in the diagnosis of pus, polyps, polypoid degeneration, deflected septums and posterior hypertrophy of turbinates. The antrascope, a more recent instrument, has many advantages, but let me add a word of warning: the antrums cannot be entered too lightly by a tyro. The insertion of any instrument into the antrums is a major procedure, and one should be thoroughly familiar with all details before attempting it. Polyps, pus and polypoid degeneration can be detected in the antrums with the antrascope.

Should any condition be found requiring further study, the patient is sent to the roentgen-ray department under Dr. Willis Manges, so that any suspected foci of infection may be roentgenographed. This has been the greatest help in diagnosis.

Patients with bronchial asthma fall into four groups:

1. Those who are hypersensitive to some specific substance (protein). These might be termed specific diagnosis cases.

2. Those who react not at all or only feebly to any specific substance but have a focus of infection somewhere. These might be termed infectious cases.

3. Those who react to a specific substance but are not very much benefited by treatment, a group which may be termed mixed cases. These patients frequently have a focus of infection or a pathologic condition of the nose causing pressure and some interference with

* From the Asthma Clinic and Laryngeal Clinic, Jefferson Hospital.
* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

the function of the nose in conjunction with their hypersensitiveness.

4. Those in whom the disease is not infectious, and who are not hypersensitive.

The second and third classes of patients are those in whom the otolaryngologists are particularly interested. The roentgenologist can also be of great help in the diagnosis of these obscure cases.

### USE OF THE TERM "CURED"

There is great temptation when some procedure brings about a cessation of the attacks of asthma to report the cases as cured. We would say a word of warning about the use of the word "cured" in bronchial asthma. Many happenings and slight operations bring about a cessation of attacks or temporary relief to bronchial asthma sufferers, but to use the word "cured" in such cases will be found to be erroneous. If these patients are followed up, the recurrence of the attacks is found to be only too common, so that it is well to be guarded in the use of the word "cured" until the patients have been observed for a number of years.

### PARANASAL SINUSITIS IN BRONCHIAL ASTHMA

In this series of cases, 20 per cent of the patients had antritis; 16 per cent had ethmoiditis, and 10 per cent had frontal sinusitis. Of course many of these patients had two or more of these groups of sinuses infected.

That there is some relation between the infections of the cranial air cells and bronchitis is well established (Dr. Chevalier Jackson), but how much these infections influence the attacks of bronchial asthma is still a moot question.

We found that 30 per cent of the patients with bronchial asthma had one or more dark sinuses by transillumination, and 26 per cent showed the same condition by roentgen ray. It might be noted that there was only 4 per cent difference between transillumination and roentgen ray. Many of these patients did not give skin reactions and we feel sure that further study of many of those patients showing only slight or no skin reactions will reveal some focus of infection or abnormality as the cause of repeated attacks of bronchial asthma.

Of these infectious cases we were able to follow up 77 per cent. In 15 per cent there was no improvement; in 22 per cent slight improvement; in 42 per cent moderate improvement, and in 22 per cent marked improvement.

The age of the patients ranged from 6 years to 60, and they were of both sexes.

It will be seen that a goodly number received some benefit from the treatments, which consisted of:

1. Washing infected antrums under local anesthesia.

2. The use of suction (negative pressure), which has been a great help in diagnosis as well as treatment, especially in obscure ethmoidal and sphenoidal sinusitis cases.

3. Colloidal silver preparations in solution used as nasal packs, which were found quite beneficial.

4. Removal of anterior ends and occasionally posterior ends of turbinates in ethmoiditis, and sometimes more radical sinus operations on the antrums, found necessary to give relief and clear up purulent discharge.

Some of these patients were also referred to the Bronchoscopic Clinic for treatment.

### SPHENOID SINUSES

Infection of the sphenoid sinuses is more common than is generally supposed. With more accurate methods of diagnosis, including the roentgen ray, an increasing number are being found.

### POLYPS AND ASSOCIATED CONDITIONS

Of the patients studied, 24 per cent had polyps in the nasal fossae. These polyps are frequently associated with sinus disease; they should be removed and the sinusitis treated. Great relief is experienced after their removal, and there is frequently a lessening of the attacks of asthma. In the cases in which they were removed, there was no improvement in 15 per cent; slight improvement in 31 per cent; moderate improvement in 43 per cent, and marked improvement in 11 per cent.

Polypoid degeneration of the mucous membrane of the nose and antrums is fairly common in bronchial asthma patients and, if excessive, should be removed. Further study of this condition will be made. We would warn against too radical removal of tissue from the nose. We have found a few cases of atrophic rhinitis (ozena), probably due to the removal of too much tissue from the nasal fossae.

Deviated septums and turbinates pressing against the septums are frequently seen, and we believe that whenever the patient's condition warrants it the septum should be straightened (submucous resection). We have had some excellent results from this single procedure. Turbinates impinging against the septum must either be treated with the cautery or partly removed.

### DISEASED TONSILS

It would seem that any chronic diseased condition of the body would aggravate the attacks of bronchial asthma, but curiously enough we have not found the beneficial results from the removal of diseased tonsils that might naturally be expected. About 60 per cent of the patients had diseased tonsils at the time of examination. We were able to follow up 77 per cent of these. In 12 per cent there was no improvement; in 23 per cent slight improvement; in 45 per cent moderate improvement, and in 20 per cent marked improvement.

Of the 35 per cent who had the tonsils removed, we were able to follow up 80 per cent. In 12 per cent there was no improvement; in 22 per cent slight improvement; in 34 per cent moderate improvement, and in 32 per cent marked improvement. In the final analysis, the difference in the results is not startling, but we think it is somewhat in favor of the removal of diseased tonsils.

### INFECTED MOUTHS

Many patients have foul mouths, and we have not always been successful in having roentgenograms made in cases of suspected root infections. We did find 8 per cent of the patients with positive roentgen-ray pictures of diseased roots. We deplore the needless extraction of teeth—many come with every tooth removed—but in all patients with bronchial asthma the teeth should be carefully studied and infections cleared up. Gold crowns and bridge work should be carefully inspected by a capable dentist.

### EAR CONDITIONS

There were only a few patients that showed any ear involvement. Further study of these patients will be made. The conditions found were chronic suppurative otitis media, polyps in the external canal, and mastoid tenderness.

Medical Arts Building.

# ROENTGEN-RAY OBSERVATIONS IN ASTHMA*

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There is probably no other disease associated with tissue changes that can be demonstrated roentgenographically that has received so little attention by the roentgenologist as asthma. The roentgenologist is not responsible, except that as a specialist he has not made an aggressive effort to get cases for study. As an example of this lack of interest or opportunity one may note that Wessler and Jaches [1] have not even mentioned asthma in their work on clinical roentgenology of diseases of the chest, and yet they do describe many relatively rare conditions.

There is really very little roentgenologic literature on the diagnosis of asthma and its complications. Strangely enough, on the other hand, there are many excellent papers on the roentgen-ray treatment of asthma; and, too, it is worthy of note that in all of them excellent results are reported.

We do not at this time want to deal with the subject from a roentgen-ray therapy point of view, but we do want to demonstrate that in many of the cases tissue changes are so marked that no treatment could succeed without taking these changes into account. We want to arouse a definite interest in the minds of roentgenologists, as well as clinicians, so that they may do their share toward the relief of patients suffering with asthma and its complications.

We believe that a diagnosis of asthma is not complete without a roentgen-ray examination of the chest and sinuses and a very careful surgical search for other foci of infection about the upper air passages and mouth. It is certain that infection plays an important rôle in the majority of cases of bronchial asthma.

Bronchoscopy has added a new and interesting chapter to the accounts of this condition during the last few years. In fact, a large portion of the patients whom we have studied have come from Dr. Jackson's Bronchoscopic Clinic, where they have been under treatment. Dr. W. F. Moore [2] of Dr. Jackson's staff has described the results of bronchoscopic treatment in twenty-seven cases. In twenty of these there was evidence of an active tracheobronchitis with more or less exudate. The exudate is variously described as tenacious, thick and adherent, quite viscid, very thick, thick and tenacious mucopus, gelatinoid, plastic, elastic, pus exuding from all bronchi, and mucoid. One can readily appreciate that exudate of such character can almost completely obstruct bronchi of small lumen, especially at expiration, when the lumen of the bronchus is smallest. Also, exudate of such character can readily interfere with drainage in the more dependent parts of the lungs, so that conditions are favorable for further development of infection.

Bronchiectasis is not an uncommon stage of development. This is best demonstrated by means of the injection of iodized oil through the bronchoscope.

In a former paper we [3] described briefly the changes found in the chests of 157 patients and divided them into seven main groups, with percentages in each, as shown in table 1.

Subsequent studies have not caused us to regret or change the classification, but we are finding more cases that are difficult to classify because two or more changes are involved.

By general peribronchial thickening we mean that the shadows of the bronchi are increased in thickness, density and length throughout the chest with a rather even distribution. The bronchi have an angular appearance rather than the taut, straightened appearance seen in healed peribronchial tuberculosis. The parenchymal portion of the lung is clear. It has the appearance of a chronic bronchitis.

Chronic infection in the lower lobes is shown by marked increased thickening of the bronchi, by more or less obliteration of the normal bronchial markings, by evidence of exudate and, at times, by numerous small cavities, giving one the impression that there is definite bronchiectasis present or that there are small lobular consolidations. Diaphragmatic adhesions are often present and are sometimes very extensive. Because of the resemblance of some of these lower lobe infections to known and proved foreign body cases of long sojourn, we have come to believe that many of them are really of the aspiration infection type.

TABLE 1.—*Chest Changes in Asthma*

| | | |
|---|---|---|
| 1. General peribronchial thickening | 42 | 27% |
| 2. Chronic lower lobe infection | 36 | 23% |
| 3. Tuberculosis | 28 | 18% |
| 4. Thickened root structures | 19 | 12% |
| 5. Enlarged heart | 5 | 3% |
| 6. Emphysema | 2 | 1% |
| 7. No changes | 25 | 16% |

Interpretation in this portion of the chest is difficult because the posterior branches are mostly involved and much of their distribution is below the level of the dome of the diaphragm. Also, on the left side, the heart obscures lung detail considerably. The facts, too, that many of these patients are deep-chested and thick chest-walled individuals, with high diaphragms and transverse hearts, and, that in the case of the female, there is the added breast tissue all help to make interpretation somewhat difficult; but careful stereoscopic study and at times lateral views enable one to determine the presence or absence of a more or less localized lower lobe infection.

We have been able to verify some of these bronchiectatic diagnoses with the aid of the bronchoscopist, who has injected iodized oil into the cavities, enabling us to make a roentgenographic demonstration of the bronchiectatic cavities, and we have recently, in one or two cases, determined that the lumen of the lower lobe bronchi was very much narrowed in certain parts.

Tuberculosis is mentioned here not because we feel that it has anything to do with the etiology of asthma but because we feel that it is an important matter to consider in the whole plan of treatment. In many of our cases the involvement was slight and the evidence was that the tuberculous lesion had healed, but in others there was even very extensive and certainly active tuberculosis, and in some of the fairly extensive cases the tuberculous lesion had not been recognized clinically.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Wessler and Jaches: Clinical Roentgenology of Diseases of the Chest, Troy, N. Y., the Southworth Company.

2. Moore, W. F.: Ciliary Inhibition or Destruction in Tracheobronchial Asthma, Am. J. M. Sc. **169:** 799 (June) 1925.

3. Manges, W. F., and Hawley, S. J.: The Roentgen-Ray Findings in the Chests of Patients Suffering with Asthma, South. M. J. **20:** 126-134 (Feb.) 1927.

Thickened root structures are variable, even in normal persons. It is rather the exception to find roentgenograms of a chest that do not show some slight glandular enlargement in this region. There is, of course, a definite variation in the amount of shadow-casting tissue in the normal person, but in a certain group of the asthma cases there is unusual thickening at the roots of the lungs. At times one gets the impression that the enlargement is glandular rather than other tissue enlargement, but again it seems clear that the thickening is of the type in which the surrounding tissues react to an inflammatory or infectious process. We have seen a tuberculous gland produce almost complete obstruction of one main bronchus, and we have seen similar glands produce expiratory obstruction to the trachea. In both of these cases a foreign body was suspected until the roentgenograms showed the presence of the enlarged glands and the narrowing of the lumen of the bronchus, in the one case, and of the trachea in the other. Many of the cases of root thickening are also associated with more or less general peribronchial thickening, and some with fairly definite lower lobe infection, so that we have difficulty in classifying this type.

An enlarged heart or a change in the size of the cardiovascular structures in the chest is not a point on which the roentgenologist is prepared to give any very precise data, except that he can give the measurements of the heart and the width of the aortic shadows.

Emphysema is present in a large number of the cases during the interval between attacks, and always at the time when the patient is in the attack or just before or just after an attack. We have classed as emphysema only those cases in which the chest has assumed a shape that is characteristic of chronic emphysema and which do not show a preponderance of the other signs.

Then, we have included in the list a group in which we feel that there is no roentgenographic evidence that can be considered of value in the diagnosis of asthma or its complications.

More recently we have investigated the records of 193 consecutive cases of foreign bodies in the air passages that have come to Dr. Jackson's clinic at the Jefferson Hospital. The results are briefly as given in table 2.

TABLE 2.—*Respiratory Foreign Bodies*

| | Adults | Children |
|---|---|---|
| Total cases | 38 | 155 |
| Cases with diagnostic foreign body histories | 22 | 142 |
| Cases without diagnostic foreign body histories | 16 | 13 |
| Cases diagnosed asthma at some time | 0 | 6 |

## REPORT OF CASES

The following are brief abstracts of the histories of the six cases in which asthma had been the diagnosis:

CASE 1.—M. B. P., aged 3 years, about Aug. 1, 1924, had a heavy cold with marked wheezing and some shortness of breath, and was taken to a physician, who diagnosed the condition as "asthma" and prescribed accordingly. The symptoms were paroxysmal cough and slight fever, with marked wheezing respiration, particularly marked at night. The patient remained under the physician's care until late in 1924. As the condition did not improve, the patient was taken to a nose and throat specialist, as it was believed that the wheezing might be caused by enlarged tonsils. The specialist advised a roentgenographic examination, as he thought that probably the condition resulted from an enlarged thymus. A roentgenogram of the chest, Jan. 31, 1925, revealed an obstruction of the right bronchus which proved to be a nut kernel. No history of a foreign body could be elicited from the parents.

CASE 2.—In the case of R. M., a child, aged 19 months, a history of a foreign body was not obtainable, but seven weeks before its admission to the Jefferson Hospital, the mother heard the child coughing one afternoon while playing on the floor; there was no choking or gagging. The next day the child developed a fever, and seemed generally quite ill. A physician was called, and he pronounced the condition congestion of the lung. A few days later the child recovered and seemed perfectly well. About one week later the child developed a wheeze which has persisted to date. Another physician was called after the child had had the wheeze for a week or two, and he pronounced the condition "asthma." In spite of various medications given for the asthma, the wheeze persisted, as did the cough, which developed about one week after the wheeze and was croupy at times. Physicians were changed. The baby was taken to another physician, who advised a roentgenographic examination of the chest, which revealed obstruction to the left bronchus. This subsequently proved to be a peanut. The roentgenologist believed the child should be brought to Dr. Chevalier Jackson for a diagnostic bronchoscopy.

CASE 3.—J. G., a boy, aged 15 months, seen, Oct. 2, 1925, had been standing near an older child who was eating peanuts, and had put something in his mouth. As the mother went to remove it, the infant fell and struck his head and had a gagging and choking attack during which the mother removed some peanut kernels from his mouth. Immediately following this a wheeze was noted. A physician was called and he diagnosed the case as "asthma." The child was ill for about five weeks. Finally, as an improvement was not noticed, a roentgenogram was deemed advisable; this revealed emphysema of the right lung, with the heart markedly displaced to the left. A bronchoscopy was deemed advisable, and a peanut kernel was found in the right bronchus.

CASE 4.—B. A. M., a girl, aged 4½ years, had a cough with asthmatic breathing since she was about 18 months old. She was treated for many months for "asthma," and the parents were advised to take the child to the mountains for the climatic benefit. Her condition improved and she was relieved of cough. Symptoms, however, returned when the patient was brought back to the city. For about three years the patient was treated for "asthma." The mother finally insisted on a roentgen-ray examination of the chest, which was made just recently and revealed a staple in the left bronchus.

CASE 5.—A. C. J., a girl, aged 9 years, choked while eating peanuts, July 4, 1925. That evening she became ill with coughing and vomiting attacks and with fever, and it was thought that she had "eaten too much that day." A local physician was called (he was not informed of the choking while eating peanuts), and he pronounced the condition "asthmatic bronchitis" and prescribed accordingly. There was no improvement. A roentgenographic examination was advised, which showed some pathologic change in the right lower lobe. A bronchoscopy was performed, which revealed a peanut in the right stem bronchus.

CASE 6.—When A. N. M., aged 10 years, was having several teeth pulled under ether anesthesia, in August, 1924, the dentist lost one tooth in the patient's mouth but did not tell the parents about it. Next day fever and slight cough developed. The child was put to bed, as pneumonia was suspected. A physician was called, and he made a diagnosis of "asthma" due to the taking of ether. About three months later another diagnosis of abscess was made. A roentgenographic examination which was then advised revealed the tooth in the lower lobe of the right bronchus.

## COMMENT

This is so small a portion of the foreign body cases that have been seen at Dr. Jackson's clinic that it would not be fair or proper to speak in terms of percentages, but it must be evident that more than occasionally it happens that foreign bodies in the air passages are overlooked because of the clinical resemblance of the symptom complex to that of asthma. This, of course, is particularly true in children, but it is also true that foreign bodies may be overlooked for a matter of years,

so that a foreign body aspirated in childhood may produce a chronic lower lobe infection, even into adult life, without having been diagnosed as such.

Then occasionally one comes across a patient who has some decidedly unusual condition, and, if it does mechanically interfere with breathing, and especially if it produces a wheezing respiration, it is very apt to lead to a diagnosis of asthma. We have had a patient recently with a clinical diagnosis of asthma, in whom we found evidence of overdistention with air in the lungs but with very little tissue change anywhere. We found on roentgen-ray examination that there was positive evidence of an enlarged thymus and, in addition to this, on bronchoscopic examination, it was found that the lumen of the trachea was very much diminished, especially in a lateral direction, by a condition that made the trachea very rigid. At autopsy, it was found that there was an enlarged thymus and also a growth that constricted the trachea. It was hard and firm and was possibly in the nature of a chondroma, but, at any rate, the tumor did very materially obstruct the trachea. Following the bronchoscopy, we were able to demonstrate roentgenographically the narrowing of the trachea.

Infection of the upper air passages is a very frequent complication, and we believe it is a very important factor in the etiology of asthma. We have not as yet tabulated our cases from this point of view, but it is certain that a very large percentage of patients with chronic asthma have also chronic infectious diseases of the accessory sinuses.

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## BRONCHOSCOPY AS AN AID IN DIAGNOSIS AND TREATMENT OF BRONCHIAL ASTHMA *

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Bronchial asthma has been described by the early writers as a form of asthma in which there occurs spasm of the bronchus and swelling of the bronchial mucous membrane. These statements were based on clinical deductions and supported by meager data obtained at autopsy. As a result, numerous theories were expounded to explain the clinical manifestations and, as is often the case, many of these, although not founded on fact, still influence the teachings of the present day.

With the advent of bronchoscopy in the field of diagnosis, it became possible to make direct observations on the appearances, movements and secretions of the trachea and bronchi in the living.

In 1907, Nowotny [1] bronchoscopically observed a case of bronchial asthma and made direct applications to the bronchial mucosa through the bronchoscope with favorable results. Since that observation many patients have been bronchoscopically examined by numerous observers. Various observations have been recorded in many of these cases.

Freudenthal [2] reported ulceration of the trachea and bronchi, and in one case there was found bronchial obstruction by a scarlike mass. In Keiper's [3] case there was observed marked rhythmic contraction of the bronchus; the mucosa was congested and swollen. Jackson [4] observed two patients during an asthmatic attack. In neither of these was there noted evidence of spasmodic stenosis; the mucosa was more purple than red; the bronchi were filled with secretion, and following its removal by bronchoscopic aspiration considerable relief was experienced by the patients.

Lukens [5] found urticarial patches in the bronchi of two of his patients; in those remaining, there was observed either a cyanotic mucosa without suppuration or a chronic tracheobronchitis with a variable quantity of secretion. Moore's [6] observation corroborated the foregoing. Both he and Lukens reported collapse of the trachea during expiration and cough in several of their cases. In no instance was anything found to suggest the occurrence of bronchospasm.

The foregoing observations made by many bronchoscopists tend to show that the bronchoscopic picture of bronchial asthma is not constant. Many of the patients were examined during an asthmatic attack; others, during the interval between paroxysms. In a number of these, cocaine was applied locally to the larynx and trachea as a preliminary to bronchoscopy.

At the Bronchoscopic Clinics many patients with asthma are observed. In every case bronchoscopic investigation is deferred until the patient has been thoroughly examined by the internist, rhinologist and roentgenologist, and the question of allergic reactions has been investigated. In this survey a large number of patients are found who exhibit hypersensitive phenomena, evidences of cardiac or renal disease, or the presence of accessory nasal sinus disease or other organic conditions, and treatment based on these observations is instituted. In the remaining smaller group of cases which do not present etiologic factors or in which there is no favorable response to the prescribed treatment, the question of bronchoscopic investigation is considered.

### BRONCHOSCOPY IN THE DIAGNOSIS OF BRONCHIAL ASTHMA

The occurrence of asthmatic symptoms in a large number of conditions other than asthma renders diagnosis difficult and often leads to erroneous conclusions. Jackson [4] states that "stenosis of the trachea and bronchi has so often been mistaken for asthma that it would seem inadvisable to make a diagnosis of asthma without exclusion of organic stenosis."

### LARYNGEAL STENOSIS

Stenosis of the larynx of inflammatory origin or as the result of new growths, notably cancer, should never be confused with asthma; nevertheless it is not uncommon to find that patients with laryngeal stenosis have at some time been treated as asthmatics. In the study of patients presenting asthmatic symptoms, the routine rhinologic examination should include examination of the larynx by mirror laryngoscopy, or by the direct method if necessary.

### STENOSIS OF TRACHEA OR BRONCHI

Narrowing of the airway and the presence of pathologic secretions may give rise to symptoms not unlike

* From the Chevalier Jackson Clinics.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

1. Nowotny, F.: Monatschr. f. Ohrenh. **41**: 697, 1907.
2. Freudenthal, W.: Tr. Am. Laryng. Rhin. & Otol. Soc., 1911; Endobronchial Treatment of Asthma, New York M. J. **93**: 1219 (June 24) 1911.
3. Keiper, G. F.: The Bronchoscopic Treatment of Spasmodic Asthma, Ann. Otol. Rhin. & Laryng. **23**: 53 (March) 1914.
4. Jackson, Chevalier: Peroral Endoscopy and Laryngeal Surgery, St. Louis, Laryngoscope Company, 1914.
5. Lukens, R. M.: Bronchoscopy in the Treatment of Asthma, Laryngoscope **35**: 227 (March) 1925.
6. Moore, W. H.: Ciliary Inhibition or Destruction in Tracheobronchial Asthma, Am. J. M. Sc. **169**: 799 (June) 1925.

those of asthma. In rare instances, a diagnosis of tracheal compression can be positively made by mirror laryngoscopy or by roentgen-ray study and physical examination. Direct inspection of the airway will objectively determine the presence or absence of organic stenosis. By diagnostic bronchoscopy, Jackson, Greene, Orton, Myerson, Syme and others have demonstrated organic disease of the trachea and bronchi in patients whose symptoms had erroneously led to a diagnosis of asthma. The following cases are quite typical:

CASE 1.—A man, aged 49, having recently developed cough, wheezing respiration, slight dyspnea and inability to sleep in the recumbent position, was treated for bronchial asthma. Failing to respond to the treatment, he was referred to the Bronchoscopic Clinic, where routine studies were instituted. As the examinations were practically negative, a diagnostic bronchoscopy was done. There was found a fungating area involving the wall of the left bronchus. A specimen of tissue removed for biopsy was reported as cancer.

CASE 2.—A woman, aged 42, had been under treatment for so-called asthma, but in spite of all the "asthma cures" that were being used, the symptoms became progressively worse and severe dyspnea developed. She was referred to the Bronchoscopic Clinic for treatment. At diagnostic bronchoscopy an extensive ulcerating neoplasm of the trachea was found. The histologic examination of tissue removed showed a squamous cell epithelioma.

CASE 3.—A child, aged 12 years, developed wheezing respiration, difficulty in breathing and cough. After one month of treatment she was referred to the Jefferson Hospital for admission, with a diagnosis of asthma. The symptoms and certain of the physical signs certainly suggested bronchial asthma; however, roentgen-ray study revealed some pathologic changes in the upper mediastinum, which could not be definitely interpreted. At diagnostic bronchoscopy there was found a compression stenosis of the trachea. The tracheal lumen consisted of a narrow slit about 2 mm. in width with its long axis in the sagittal plane of the body. The mucosa was moderately congested and slightly granular but not ulcerated. There was no movement of the tracheal wall with respiratory movements, the walls of the stenosed lumen remaining fixed, suggesting a new growth. Although the character of the pathologic lesion could not be determined bronchoscopically, it manifestly was not bronchial asthma.

### OBSTRUCTION BY FOREIGN BODIES

Jackson has said: "The diagnosis of asthma should never be made in a child without excluding foreign body as a diagnostic possibility." Foreign bodies producing tracheobronchial or esophageal obstruction may give rise to symptoms simulating asthma. Jackson [7] reported that thirty-seven children whose symptoms were due to the presence of a foreign body and to secondary pulmonary changes were brought to the Bronchoscopic Clinic after a diagnosis of bronchial asthma had been made by physicians elsewhere. In six of these cases the foreign body was producing esophageal obstruction, with overflow of secretion into the larynx in four cases, and perforation into the trachea in the remaining two cases. The asthmatoid wheeze, paroxysms of coughing and presence of râles were suggestive of asthma.

### BRONCHOSCOPIC EXAMINATIONS IN ASTHMA

Diagnostic bronchoscopy was limited almost entirely to asthmatic patients who either did not present a demonstrable etiologic basis for their symptoms or who did not respond to treatment based on supposed causative factors. By selecting patients in this manner, it was possible not to perform bronschoscopy on those with definite allergic manifestations, demonstrable foci of infection or organic disease. In a majority of cases bronchoscopy was done during the intervals between attacks; in certain instances, however, the examinations were carried out during paroxysms, or the patient developed an asthmatic attack in the course of the bronchoscopy.

The conditions found were similar, in many respects, to those observed by Lukens [5] and Moore; [6] namely, (*a*) changes in the mucosa of the trachea and bronchi; (*b*) presence of abnormal secretion; (*c*) collapse of the trachea and bronchi during cough and expiration; (*d*) absence of bronchial spasm, and the (*e*) absence of mucosal erosion or ulceration.

*Changes in the Mucosa of the Trachea and Bronchi.*—In the cases observed between atttacks, the changes noted were those of a chronic tracheobronchitis. In some, the mucosa was intensely inflamed, in others it was velvety or granular. In the cases examined bronchoscopically during paroxysms there was found marked swelling and turgescence of the mucosa, which appeared cyanotic and purple rather than red. In one case the mucosa was edematous, completely obscuring the normal ring markings. Occasionally, longitudinal furrows in the mucosa were seen, involving the membranous rather than the cartilaginous portion of the lumen.

In a very thorough pathologic study of the changes observed in cases of asthma, Huber and Koessler [8] found marked structural changes in the bronchi involving all the coats and producing definite narrowing of the lumen.

*Presence of Abnormal Secretions.*—In practically every case there was present an increase in the quantity of secretion. This varied considerably. In cases associated with suppuration the secretion was distinctly purulent in character, without odor, and could be traced to definite bronchial branches, usually those of the lower lobes. In a girl, aged 22 years, there was found a well defined suppurative process limited to a portion of the left lower lobe. After pneumonographic studies, Dr. W. F. Manges reported the presence of well defined bronchiectatic dilatations involving subdivisions of the left lower lobe.

In a larger group of cases the secretion, mucoid in character, was found adherent to the mucosa of the trachea and bronchi. It often practically occluded the orifices of the smaller bronchial subdivisions. Owing to its tenacious character, great difficulty was experienced in its removal either with swabs or by a specimen collector. In one case examined bronchoscopically during an asthmatic attack, 6 cc. of thick, tenacious secretion was aspirated from the bronchi. Its consistency suggested a thick mucilage, and the bacteriologist experienced great difficulty in breaking it up so that inoculations and smears could be made.

*Collapse of the Trachea and Bronchi.*—Forward bulging of the membranous wall of the trachea during cough is often observed in children, occasionally in adults, and is not considered pathologic. In the normal person there is a rhythmic movement of the trachea and bronchi during respiration. The bronchi elongate and dilate during inspiration; during expiration they shorten and contract. These changes are participated in by the entire bronchial tree, and the lumen retains a more or less rounded appearance.

The collapse observed in certain cases of asthma differs from the normal phenomena both in appearance and in the mechanism involved in its production.

7. Jackson, Chevalier: Chronic Nonspecific Infection of the Lungs, J. A. M. A. **87**: 727 (Sept. 4) 1926.

8. Huber, H. L., and Koessler, K. K.: Pathology of Bronchial Asthma, Arch. Int. Med. **30**: 689 (Dec.) 1922.

Lukens [5] observed marked collapse of the trachea during expiration in two patients, both adults. This has since been noted in a number of instances. In some cases, the collapse is limited to the posterior tracheal wall, which, bulging forward, becomes convex and fits into the concavity of the anterior wall of the trachea; the resulting lumen is crescentic. The forward bulging occurs during expiration and cough, and is in proportion to the force of the expiratory effort. In several cases the lateral tracheal walls also participated in the collapse, giving the lumen a triangular appearance. In three cases observed, there was an associated collapse of the walls of the bronchi, including the orifices of the bronchial subdivisions. These changes were so marked as to interfere with the introduction of the bronchoscope, which could be advanced only during inspiration.

Although the collapse may be passive in nature, in certain of the cases observed one gained the impression that the tracheal and bronchial walls were being forced shut by some external influence. While not characteristic of the average case of asthma, it is unquestionably a pathologic state that is present in certain of the different diseases clinically described as asthma.

Mechanical conditions producing the wheezing sounds so commonly heard at the open mouth of asthmatic patients seemed perfectly obvious in these cases; namely, air being forced through a wrinkled, slitlike lumen with thick, mucoid secretion adherent to its walls.

Dr. F. J. Kalteyer, who has observed certain of the cases of bronchial collapse through the bronchoscope, states that this alternate closure during expiration and opening during inspiration of the respiratory passages is brought about by changes in the position of that part of the bronchial wall between the free ends of the cartilages which is quite flexible and composed largely of nonstriated muscle fibers. It is displaced forward during expiration and retracted during inspiration. The explanation of this phenomenon might be found in the marked variations of pressure within the lobules of the lung, so that a rapid and pronounced rise occurs during expiration and a quick and decided fall during inspiration, caused, on the one hand, by obstruction of the smaller bronchi by swelling of the wall of the tubes or by exudation within their lumen and, on the other hand, by the alterations in the size of the thorax during breathing. This occlusion of the smaller tubes obstructs both the ingoing and the outgoing tidal air, and in consequence there are rapid changes in intralobular pressure. Since the lobules surround the larger bronchi just beyond the bifurcation of the trachea, and as their walls are quite elastic, a marked accession of intralobular tension, while the thoracic space is being diminished during expiration, will cause the forward displacement of the flexible and more yielding part of the bronchial wall between the ends of the cartilage. During inspiration, the conditions of pressure are reversed and the larger bronchi open suddenly.

*Absence of Spasm of Bronchus.*—Objective evidence of spasm of the bronchi or trachea was not found in the cases examined. This could very readily be explained if patients were examined only in the interval between asthmatic attacks, or if cocaine or epinephrine had been bronchoscopically applied during the paroxysm. A number of patients were examined during paroxysms and of these, four showed marked collapse of the trachea. In two cases the large and small bronchi as well as the trachea were found almost completely closed. These phenomena occurred only during the expiratory phase of respiration. During inspiration the lumina were practically normal in size.

In one patient a solution of epinephrine, and in another a combination of cocaine and epinephrine, was applied directly to the bronchial wall without an appreciable change being observed in the degree of collapse.

*Mucosal Erosions and Ulcerations.*—In no case was there found any interruption in the continuity of the lining epithelium of the air passages. Removal of masses of adherent secretions left an underlying mucosa which in no way differed from that of the surrounding mucous membrane (Lukens).

### BRONCHOSCOPY IN TREATMENT

It is assumed that cases of asthma referred to the bronchoscopist for treatment have been carefully studied from every standpoint, and that either etiologic factors could not be discovered or the patient did not respond to treatment based on apparent causative factors.

All bronchoscopists are agreed that certain patients with asthmatic symptoms are benefited by bronchoscopic treatments, unaided by other measures. The relief may be temporary or may extend over a period of many months. Although cures have been ascribed to bronchoscopy, I believe that time alone can determine the permanence of the benefits obtained; in a majority of instances they will be temporary.

The best results by bronchoscopy are obtained in the treatment of patients who have a chronic tracheobronchitis with increased secretion, either mucoid or purulent in character. Little, if any, improvement can be expected in those cases of asthma which present a chronic tracheobronchitis with cyanotic swollen mucosa and practically no secretion.

Bronchoscopic treatments consist of removal of secretion and the endobronchial introduction of some form of medication. There is an advantage in employing the small flexible-tipped Lynah aspiration tube. This can be carried into the smaller bronchial subdivisions beyond the tip of the bronchoscope. Medication can be introduced by topical applications, or a small quantity can be instilled. Its value is questionable. The endobronchial introduction of cocaine and epinephrine (Lukens and Moore) during an asthmatic attack will nearly always give immediate relief. In my experience, the use of a preparation of oil of cajuput, monochlorphenol, menthol, mercurochrome-220 soluble and silver nitrate after aspiration has given results which were practically identical with those obtained by simple aspiration of secretion.

Immediately after bronchoscopy there usually occurs more frequent cough, with an increase in the quantity of secretion. The breathing is easier, secretions are expelled with less effort, and the patient is more comfortable. This improvement may be of brief duration or it may continue for weeks or even months.

*Vaccine Therapy.*—The use of vaccines in the treatment is a matter for the practitioner to decide. From the standpoint of bronchoscopy it is interesting to note that vaccine made from secretions removed bronchoscopically will often give relief when an effect has not been obtained following the use of an autogenous vaccine made from sputum or of a stock vaccine. The following case is typical and is not unusual.

CASE 4.—A man, aged 36, had had asthma for four years, with an associated infection of the nasal accessory sinuses. Although fourteen sinus operations had been performed by competent rhinologists, no relief was experienced. Prolonged courses of vaccine treatment using stock vaccines and autogenous preparations made from nasal secretions and sputum

did not give relief. A diagnostic bronchoscopy was performed which showed a chronic suppurative tracheobronchitis. Secretion removed bronchoscopically for vaccine showed a streptococcus. Slight temporary relief followed bronchoscopy. With the administration of the autogenous vaccine there was practically a complete cessation of the asthmatic symptoms. When the supply of vaccine was exhausted, the symptoms recurred. A stock vaccine containing the same type of streptococcus was obtained, but its use seemed to aggravate the symptoms. The patient returned for bronchoscopy. The same type of organism was recovered as before, and when the autogenous vaccine was used a similar cessation of symptoms was observed.

### RATIONALE OF BRONCHOSCOPY IN THE TREATMENT OF BRONCHIAL ASTHMA

In the absence of concrete data relative to the cause of bronchial asthma, it is difficult to explain the modus operandi of bronchoscopic treatment in this condition. If the theory of bronchial spasm is accepted to account for the occurrence of asthmatic paroxysms, bronchoscopy must exert some curious influence on the reflex nerve mechanism. If this is true, then all cases of asthma should be equally benefited by bronchoscopy. At the Bronchoscopic Clinic, observations made on a large number of patients with asthma failed to reveal a single instance of spasm of the trachea or bronchi. These observations were made during asthmatic attacks as well as in the interval between paroxysms.

The collapse heretofore described cannot be considered as spasm, irrespective of its cause. Nor can the free discharge of secretion following bronchoscopy or after the use of epinephrine be accepted as indicating that there has been a bronchospasm with temporary retention of secretion beyond the point of spasm. There is no clinical evidence to indicate that "drowned lung" occurs in asthma.

The rapidity of onset and the clearing up of paroxysms with or without treatment might suggest muscle spasm. It must be recalled, however, that the same phenomena are observed in hay-fever involving the nose, in which there are no muscle fibers and which therefore cannot be the seat of such muscle spasm as is ascribed to the bronchi.

### COMMENT

Certain pathologic and clinical observations have been made which seem to explain some of the asthmatic manifestations. Whatever the ultimate solution of the asthma problem may be, observations of the following conditions will at least be of didactic interest:

Changes in the tracheobronchial mucosa which shows evidences of chronic inflammation.

Narrowing of the lumen of the smaller bronchi and bronchioles by increased thickness of all the layers.[8]

Changes in secretion, which is usually thickened, increased, tenacious and adherent; to this cause could be added disturbed activity of the bronchial glands.

Loss of ciliary motion, actual loss of cilia, or fatty degeneration of cells of the bronchial mucosa.[9]

Collapse of the tracheal and bronchial walls during expiration and cough; obvious mechanical interference with the free escape of air during expiration; production of a wheezing sound.

### CONCLUSIONS

Although definite conclusions can hardly be arrived at in the discussion of a condition which is not a clinical entity and presents such varied subjective and objective manifestations, it can be safely stated that:

1. Bronchoscopy, as a diagnostic measure, should be resorted to in those cases of "asthma" which present certain obscure signs and symptoms referable to the tracheobronchial tree and which do not respond to the commonly accepted methods of treatment.

2. Certain cases of asthma, especially those showing a chronic tracheobronchitis or definite lung suppuration, respond favorably to the bronchoscopic aspiration of secretion.

3. Before accepting a patient for bronchoscopic treatment, systematic studies should be made to elicit all possible etiologic factors. The investigation should include a roentgen-ray study of the chest and a rhinologic examination, as well as the usual allergic tests.

4. Cooperation of the bronchoscopist with the internist is essential.

128 South Tenth Street.

[EDITORIAL NOTE.—This paper, together with the four papers by Drs. McLaughlin, Clarke, Stout, and Manges and Hawley, which precede it, constitute part of a symposium on bronchial asthma. The papers by Drs. Eiman, Wilmer and McGinnis, and the discussion will be published in our next issue.]

9. Moffitt, cited by Moore (footnote 6).

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## THE EFFECT OF DIATHERMY ON THE CIRCULATION

### SOME EXPERIMENTAL OBSERVATIONS *

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AND
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Heat, if it could be applied properly and controlled adequately, might be of value in the amelioration of symptoms, and perhaps to some degree arrest the progress in certain diseases. Theoretically, the application of the high frequency electric current offers a possibility in this respect. The therapeutic use of this type of electric current has become popularized under the name of "medical diathermy." This has been used in the treatment of certain cardiovascular diseases, especially angina pectoris, and because of its possibilities in the latter condition the study here reported was undertaken. In spite of the fact that this type of electric current has been used in the treatment of disease for more than thirty years, there are relatively few scientific investigations of a clinical nature reported in the literature. The work presented here, which was started in 1925, is an experimental study of the application of medical diathermy to the chest, in such a manner as to observe particularly its effect on the normal heart and circulation. Its purpose was to demonstrate any physiologic changes which might indicate that medical diathermy is useful in the treatment of cardiovascular disease.

Since the discovery of the high frequency electric current in 1891, which has been accredited generally to d'Arsonval, a voluminous literature on the subject has accumulated. The clinical application of the high frequency current to any extent came into use about 1906, and Frederick DeKraft, Nagelschmidt and von Berndt were among its earliest sponsors. Diathermy seems to have been used in the treatment of almost every type of disease. The literature abounds with reports of improvement, and even cures, of various conditions following the use of diathermy. One is impressed by

* Read before the American Society of Clinical Investigation, Atlantic City, N. J., May 2, 1927.

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the general optimism that prevails. Also, one cannot overlook the scarcity of reports of experimental work directed to establish a scientific basis for this impression. Nagelschmidt,[1] in his book, cites twelve experiments to demonstrate the physiologic action of diathermy; these experiments have to do particularly with the heart and the circulation. Lonergan[2] studied especially the effect of diathermy on joints in animals and found that an appreciable elevation in the temperature occurred. Also,

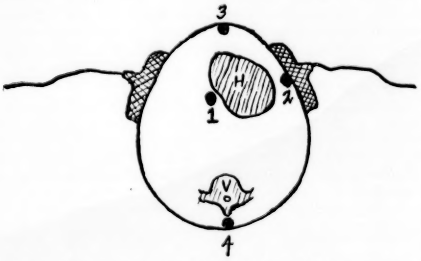


Fig. 1.—Diagram of cross-section of chest showing the lateral application of electrodes and positions of the temperature recording tips (thermometer or thermocouple): *H*, heart; *V*, vertebra; 1, tip in lateral or posterior juxtaposition to the heart; 2, tip in the "electrode-skin" area; 3, tip in midanterior skin area; 4, tip in midposterior skin area.

he adds that no notable elevation in temperature was produced in the thoracic cavity in the presence of a normal circulation. Very careful experimental studies on the production of deep temperatures by diathermy have been reported recently by Bettman and Crohn.[3] Their observations were made on inanimate substances, dogs and human subjects. In dealing with living tissues of the chest and abdomen, an elevation in the temperature of the skin and tissues directly beneath it was found, but no appreciable elevation in temperature was observed in the deep tissues.

The mechanism by which diathermy acts on tissues is not thoroughly understood; the development of heat, probably, is the most important effect. The degree of heat obtained in the tissues within the field of diathermy is dependent on four factors: (1) the magnitude of the current; (2) the resistance of the body tissues in the path of the current; (3) the general heat equilibrium of the body, and (4) the distribution of the current, or current density.[3] It is questionable whether all the results that have been reported can be explained entirely on the production of heat. Perhaps the local hyperemia produced is responsible for some of the effect. Also in human subjects the psychologic response to the use of electrical apparatus probably plays an important part in many cases. No doubt, in many instances the elevation in temperature has been very slight. Is there some specific action of the electric current apart from the heat produced? This question cannot be answered in our present state of knowledge. Biochemical changes in tissues as a result of electrical contact have been attributed to the action of direct current; it is uncertain whether alternating current of such high frequency can account for tissue changes, except by the production of heat. We do not know of any method of determining or measuring this unknown and questionable factor, and therefore have confined our study necessarily to such physiologic observations as can be measured; i. e., temperature, blood pressure, heart rate, electrocardiogram, size of heart, and respiration.

1. Nagelschmidt, Franz: Lehrbuch der Diathermie, ed. 2, Berlin, Julius Springer, 1921.
2. Lonergan, R. C.: An Experimental Study of Diathermy, J. Indust. Hyg. **9**: 1-11 (Jan.) 1927.
3. Bettman, R. B., and Crohn, N. N.: Diathermy in the Production of Deep Temperature, J. A. M. A. **88**: 532-537 (Feb. 19) 1927.

### METHODS

A well known standard make of diathermy machine was employed; electrodes of sheet block tin and flat link mesh were used. In general, we were unable to notice any great difference in the merits of these two types of electrode material. However, the fields of application in our work provided fairly flat surfaces, and as we found the sheet block tin very satisfactory, it was used in the majority of our experiments. The electrodes were held snugly in place by a wooden clamp. Shaving soap lather was applied freely to a shaved skin surface for making the skin-electrode contact. Various doses were studied, but any dose used was observed in several experiments under similar circumstances. The technic of administration was to begin with a small dose and gradually increase it over a period of a few minutes until the maximum desired dose was reached, and then maintain it at this level for a given time. In the beginning the dose was measured in milliamperes, but it was soon found that this was not practical or reliable, and therefore the dose was further controlled by temperature readings on thermometers embodied in the electrodes.

Temperature determinations were made by use of the ordinary laboratory precision thermometers, and thermocouples by the galvanometer deflection method.[4] Blood pressure observations were made with a cannula in the carotid artery in the usual way. Numerical readings at minute intervals, as well as kymographic tracings, were made. The rate of the heart was determined from the electrocardiograms, the size of the heart by roentgenray, and the respirations by an ordinary pneumograph.

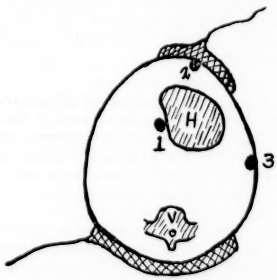


Fig. 2.—Diagram of cross-section of chest showing the anteroposterior application of electrodes and positions of the temperature recording tips (thermometer or thermocouple): *H*, heart; *V*, vertebra; 1, tip in lateral or posterior juxtaposition to the heart; 2, tip in the anterior "electrode-skin" area; 3, tip in the midlateral skin area.

Normal rabbits and dogs were used; in general, the experiments on dogs more nearly simulated the use of diathermy in human subjects, and most of the data given in the tables were selected from the experiments on dogs. It was impossible to carry out the experiments satisfactorily without some type of light anesthesia. Sodium barbital served this purpose very well; 0.2 Gm. per kilogram of body weight, dissolved in sterile water, was injected into the peritoneal cavity, or 0.25 Gm. per

4. Whipple, R. S.: Electrical Methods of Measuring Body Temperatures, abstr. Proc. Roy. Soc. Med. **12**, parts 1 and 2, Section of Electrotherapeutics, p. 54, 1919. Clark, H.: The Measurement of Intravenous Temperatures, J. Exper. Med. **35**: 385 (March) 1922.

kilogram of body weight was given by rectum. The experiment could usually be started in about an hour. All the animals completely recovered from this dose of the drug. In some instances the animal was chloroformed after the initial experiment, the apparatus being left undisturbed; after the tissues had cooled sufficiently, the experiment was repeated on the dead animal. This was done to determine the difference in effect on living and on dead tissue, and to note the effect on the circulation.

TABLE 1.—*Lateral Application of Electrodes in Rabbits* *

| Rabbit No. | Elevation in Temperature Living | | |
|---|---|---|---|
| | Position 1 | Position 2 | Rectal |
| 1 | 1.7 C. | 11.5 C. | 0.0 C. |
| 2 | 1.4 C. | 12.4 C. | 0.0 C. |
| | Dead | | |
| 1 | 11.0 C. | 19.5 C. | 0.0 C. |
| 2 | 16.0 C. | 18.0 C. | 0.0 C. |

* See figure 1. Dose of diathermy, from 0 to 750 milliamperes in five minutes and maintained at 750 milliamperes for fifteen minutes. It must be borne in mind that the dosage in milliamperes per square inch of contact surface used in the experiments given in tables 1, 2 and 3 is greater than that usually employed in the diathermy treatment of human subjects.

In all the experiments except those in which the size of the heart was studied, a determination of the temperature inside the chest was made. The thermocouple or thermometer was placed within the chest by inserting it beneath the skin in the midepigastrium, and then passing it upward under the sternum until the heart was reached. Necropsy of the chloroformed animals showed the tip of the temperature recording device to be satisfactorily located laterally or posteriorly to the heart in every instance. Sometimes it was found actually within the pericardial sac.

Simultaneous temperature determinations were made in five different positions in the body, at minute intervals throughout the experiments. The five positions selected were: (1) lateral or posterior juxtaposition to the heart; (2) the skin area covered by the electrodes ("electrode-skin" area), the temperature recording device being embodied in the electrode; (3) the subcutaneous tissue midway between the electrodes; (4) rectum, and (5) some remote part of the body, as, for example, the subcutaneous tissue in the lower part of the abomen. The electrodes were applied so that the heart was within the middle sector of tissue structure lying between the electrodes. In general, two methods of electrode application were used and are illustrated here. These are spoken of as the "lateral application" (fig. 1) and the "anteroposterior application" (fig. 2).

When the lateral application was used, the electrodes were of equal size and the temperature recording device was always in the left electrode. A cross section of the chest demonstrated that the heart was nearer the anterior surface of the chest than the posterior surface, so that when the anteroposterior application was used the electrodes were of unequal size, the smaller one being placed anteriorly and the larger one posteriorly. The anterior electrode was large enough to cover the entire precordial area. When the anteroposterior application was employed, the temperature recording device was always in the anterior electrode. In none of the experiments was any important change in the temperature observed in a part of the body remote from the field of diathermy. Therefore, this observation is not included in any of the data given in the tables.

EXPERIMENTAL DATA

1. *Temperature.*—The data given in table 1 are representative of experiments on rabbits. The size of the chests was such that when the electrodes were applied, one on each side of the chest, and held in place by a clamp, they were 5 cm. apart at their centers. The anterior margins of the electrodes were 2 cm. apart (surface distance, fig. 1). The electrodes measured 3.5 by 4 cm., and were made of sheet block tin.

The changes in temperature recorded in table 1 represent the highest elevations obtained with this technic; some of the experiments showed slighter elevations. The shape and size of the chests of rabbits were such that when the electrodes were applied in the manner described, the anterior margins of the electrodes were closer together than were the posterior margins, and frequently in these experiments it was noted that the temperature elevation was higher at position 3 than at position 2 (fig. 1). This higher elevation was not found in the experiments on dogs, in which, because of the size of the chest, the anterior margins and posterior margins of the electrodes were approximately the same distance apart.

In the living rabbit the elevation of temperature at position 1 was slight, in contrast to a marked elevation of temperature at position 2. Therefore, it was thought that the elevation at position 1 might be due partly to conduction from the surface, rather than entirely to penetration of the current. So experiments were performed, an especially devised hot-water bottle being used as a source of heat. The hot-water bottle was applied over the entire area covered by the two electrodes and the anterior portion of the chest wall between them. In the foregoing set of diathermy experiments the temperature reading on the thermometer embodied in the electrode was not higher than 45 C. at any time during the experiment. In order to simulate these experiments, a temperature of not lower than 44 C. and not higher than 46 C. was maintained for twenty minutes (length of time diathermy was applied in the foregoing experiments). It was found that the temperature at position 1 was elevated to a less degree

TABLE 2.—*Lateral Application of Electrodes in Dogs* *

| Dog No. | Elevation in Temperature Living | | | | |
|---|---|---|---|---|---|
| | Position 1 | Position 2 | Position 3 | Position 4 | Rectal |
| 1 | 2.0 C. | 17.0 C. | 8.2 C. | 0.0 C. | 0.4 C. |
| 2 | 1.1 C. | 12.5 C. | 8.0 C. | 0.0 C. | 0.0 C. |
| | Dead | | | | |
| 1 | 5.5 C. | 15.8 C. | 16.0 C. | 0.8 C. | 0.0 C. |

* See figure 1. Dose of diathermy, from 0 to 750 milliamperes in six minutes and maintained at 750 milliamperes for fourteen minutes.

when the hot-water bottle was used than it was in the diathermy experiments. For example rabbit 2 (table 1) showed an elevation of 1.4 degrees C. within the chest with diathermy, and an elevation of 0.9 degree C. within the chest when the hot-water bottle was used.

The data given in table 2 are representative of the results obtained in experiments on dogs, in which the lateral application of electrodes was employed (fig. 1). In the two experiments cited here, the chest size was the same and the electrodes were 5 by 5.5 cm. They were so arranged that it was 12 cm. (surface distance) between the anterior margins of the electrodes, and 30 cm. (surface distance) between the posterior margins of the electrodes.

The data given in table 3 are representative of the results obtained in experiments on dogs in which the anteroposterior application of electrodes was employed (fig. 2). In the two experiments cited here the chest size was the same; the anterior electrode measured 6.5 by 8 cm., and the posterior one, 10.5 by 13 cm. The electrodes were so placed that it was 23 cm. around either side of the chest between electrodes.

TABLE 3.—*Anteroposterior Application of Electrodes in Dogs* *

| Dog No. | Dose of Diathermy | Elevation in Temperature Living Position 1 | Position 2 | Position 3 | Rectal |
|---|---|---|---|---|---|
| 3 | From 0 to 1,000 milliamperes in 14 minutes and maintained at 1,000 milliamperes for 6 minutes.... | 1.2 C. | 10.0 C. | 1.8 C. | 0.0 C. |
| 4 | From 0 to 1,000 milliamperes in 6 minutes and maintained at 1,000 milliamperes for 14 minutes... | 0.8 C. | 10.7 C. | 1.0 C. | 0.2 C. |
| | | Dead | | | |
| 4 | From 0 to 1,000 milliamperes in 6 minutes and maintained at 1,000 milliamperes for 14 minutes... | 3.1 C. | 6.0 C. | 3.3 C. | 0.0 C. |

* See figure 2.

From tables 2 and 3 it will be noted that the greatest heat was present at position 2 (the area immediately beneath the electrode), and that a very slight elevation at position 1 (juxtaposition to the heart) was always associated with a marked elevation in temperature at position 2. Also the temperature at position 3 (skin area midway between the electrodes), when either method of electrode application was used, was greater than at position 1. The elevation in temperature at position 1 was always much greater in the dead than it was in the living animal; therefore, the part played by the circulation of the blood is obvious.

Hot-water experiments, similar to those described, were done on dogs. A typical result was found in an experiment in which dog 1 (table 2) was used. In the diathermy experiment on dog 1, the greatest temperature reached at any time at position 2 was 48.8 C. An especially devised hot-water bottle was applied for twenty minutes at a temperature of from 48 to 50 C. The elevation of temperature at position 1 in the hot-water bottle experiment was 0.8 C., as compared with 2 C. in the diathermy experiment.

It was interesting to see the time relationship of the elevation in the temperature to the administration of the diathermy, in the various positions. A representative experiment showing this relationship is given in figure 3.

From figure 3 it is seen that the greatest elevation in temperature was in the area immediately beneath the electrodes (position 2, fig. 1); the elevation took place rather rapidly until the time the maximum desired dose of diathermy (750 ma. in this experiment) was reached; then the elevation was more gradual, showing finally a 17 degree C. rise at the end of the twenty minutes. The elevation of temperature inside the chest in juxtaposition to the heart (position 1, fig. 1) was a very gradual one, showing a 2 degree C. rise after twenty minutes. The elevation of the temperature anteriorly between the electrodes (position 3, fig. 1) was more gradual than that beneath the electrodes. This particular experiment showed a slight rise in the rectal temperature after twelve minutes of diathermy. The majority of the experiments showed no elevation in rectal temperature. Figure 3 shows only the temperature curves during the administration of diathermy; as soon as the diathermy current was turned off the temperature dropped rather abruptly, and after twenty minutes, and often less time, was back to the original normal level.

*2. Blood Pressure.*—Any change in blood pressure, whatever its character, was found to be very temporary; practically always it had returned to its normal level, or approximately so, by the time the diathermy was stopped, and many times before the experiment was completed. A control reading on the animal a few days, or a week or two later, showed approximately the same normal level. Blood pressure readings were made simultaneously with temperature observations, and in every instance numerical readings were controlled by kymographic tracings. Readings were taken in each experiment over a long enough time before the diathermy was started to be reasonably sure of the normal. In some of the experiments no appreciable change in the blood pressure was noted; however, the majority of the experiments did show some change, more often slight than marked. In general, the changes were of two types. The most common one was a very definite, but usually only slight, elevation of the blood pressure. This was found particularly in experiments on dogs. The elevation ranged from 10 to 24 mm. of mercury, and was greatest about the time the maximum dose was reached, or within two or three minutes after. A curve showing this type of response is given in figure 4.

The less common change was a fall in blood pressure, and this was observed particularly in the experiments on rabbits. The drop in pressure in this group averaged 21 mm. of mercury, the greatest being 28 and the least 14 mm. The lowest pressure was noted from six to seventeen minutes after the diathermy was started, and from one to eleven minutes after the maximum dose was reached. Here again the pressure had returned to the normal level by the time the experiment was completed, or very shortly thereafter.

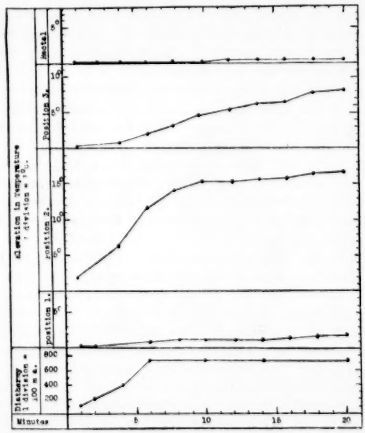


Fig. 3.—Curves showing the time relationship of the elevation in temperature to the administration of the diathermy current. This experiment is the one described in table 2, dog 1. (Lateral application of electrodes. See figure 1.)

Blood pressure observations were made in the hot-water bottle experiments mentioned above. In nearly

every instance the blood pressure was elevated during the experiment, and rapidly returned to normal level in the same manner as it did when diathermy was used. The greatest elevation was observed in an experiment on a dog, in which the maximum elevation was 20 mm., noted two minutes after the hot-water bottle had been applied.

3. *Heart Rate.*—The heart rate was determined from electrocardiograms taken at four intervals during the experiments. A control curve was taken before the diathermy was started; a second one, when the maximum desired dose had been reached; a third, at the time the diathermy was stopped; and the fourth, ten minutes later. In many of the experiments no appreciable

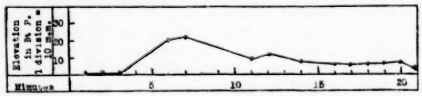


Fig. 4.—Blood pressure curve; dog experiment; lateral application of electrodes (fig. 1). From same experiment as in figure 3, and in table 2, dog 1.

change in the rate was noted; in some there was a slight acceleration of the rate. The most common change was a decrease of the heart rate, and this was found usually in those experiments in which there was an elevation of the blood pressure. The decrease in the rate in various experiments ranged from 10 to 54 a minute, the lowest rate occurring at the end of the diathermy, soon returning to its previous normal level. A curve showing this type of change is seen in figure 5.

The heart rate was determined in the hot-water bottle experiments, and here the common reaction was a slowing of the rate. In the experiment on a dog, in which the blood pressure was elevated 20 mm. by the application of the hot-water bottle, the heart rate was 11 a minute slower at the end than it was at the beginning of the experiment.

4. *Electrocardiograms.* — Electrocardiograms were taken during these experiments to determine whether any significant changes occurred in the mechanism of the heart. Nothing of any importance was found, for the complexes remained unchanged or showed only minor variations.

5. *Size of Heart.*—Studies were carried out to determine whether the heart changed in size during or after the application of diathermy; these observations were made by taking roentgenograms at various time intervals during and after the diathermy. The heart silhouettes were accurately measured and in no instance was there any appreciable change in the size of the heart shadow.

6. *Respiration.*—Studies of the respiration did not show any significant changes in the rate or character. In a few instances the respiratory rate was slightly accelerated or decreased for a few minutes during the experiment. This was always a temporary effect, and the respiration after the experiment was the same in character as it had been before the experiment was started.

Finally, in presenting these experimental data, we wish to emphasize the importance of gaging the administration of diathermy by temperature observations in the area of the electrode application, rather than by any fixed number of milliamperes alone. The threshold of safety to the tissues seemed to range between 45 and 50 C., and if the tissues were heated to 50 C. or slightly above, it was not uncommon to get sloughing. Of course, in the clinical use on human subjects the patient would be able to give indication of any uncomfortable heat. It was not always possible to anticipate at the end of the diathermy treatment whether sloughing would occur. In some instances the skin appeared perfectly normal when the electrodes were removed, and two or three days later sloughing began. These sloughs healed very slowly, the deeper ones requiring many weeks.

## SUMMARY

A series of experiments were carried out on normal rabbits and dogs, the effects of diathermy on some of the bodily functions especially related to the circulation being studied. These were undertaken because of the scarcity of accurate scientific data on the subject, and the extensive use to which diathermy is being put in the hands of the practitioner.

It was found that temperature changes within the chest were slight, even when the strength of the diathermy current was so great that the skin beneath the electrodes was burned. When the current was used just low enough to prevent skin burns, calculations indicated that the amount of current was much greater than that generally employed in practical use. Even with such currents, elevation in temperature in tissues adjacent to the heart itself was about 1.5 degrees C. It follows that the actual temperature obtained by the practitioner in human subjects is much less than that.

In repeating observations, a hot-water bottle being used as a source of heat and the type of experiment performed with diathermy being imitated, it was found that an elevation of temperature also occurred in the tissues adjacent to the heart, but to a less degree than with diathermy. Therefore, apart from the effect of the current itself, it would seem that conduction of heat from the skin surface is a factor in the production of deep temperature, in the living animal. The conduction of heat internally must take place as a result of two factors: one a purely physical contiguity of tissue, and

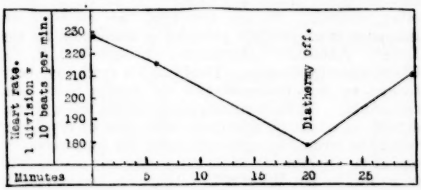


Fig. 5.—Heart rate curve; dog experiment; lateral application of electrodes. From same experiment as in figure 3, and in table 2, dog 1.

the other an actual transference of heated blood from the involved capillary bed to the heart through the venous circulation. When diathermy was applied to the chests of dead animals, a more marked elevation in temperature, as compared to that found in the living animal, was observed in the tissues adjacent to the heart. The difference in heat production in the living and dead animal emphasizes the rôle played by the circulation in carrying off the heat produced.

A study of the blood pressure changes during diathermy revealed rather slight variations in either direction, with a tendency to a temporary elevation during the treatment. Likewise, the changes in the heart rate were not striking, although here the tendency was to a slowing, usually associated with an elevation in

blood pressure. Observations on the size of the heart, as determined by roentgenograms, failed to show any appreciable change during diathermy. Electrocardiographic studies also showed either no change whatever, or such minor alterations as we considered insignificant. The amplitude and the rate of respiration were essentially unaltered.

These experiments suggest that appreciable changes within the chest could be obtained only when such intense diathermy currents were employed that serious burns and sloughing of tissues would be liable to occur.

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## THE ANTITOXIN TREATMENT OF ERYSIPELAS

### OBSERVATIONS IN ONE HUNDRED AND THIRTY-ONE PATIENTS AT BELLEVUE HOSPITAL *

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AND
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In the past twenty-three years, 15,277 cases of erysipelas were admitted to the isolation pavilion of Bellevue Hospital. During that time almost every conceivable form of treatment was practiced, most of it based on the application of local remedies. None of them appeared appreciably to shorten the course of the disease—and erysipelas, although commonly regarded as a self-limited process, seldom, in our experience at least, brings itself to an abrupt end, but is apt to pursue a leisurely course, sometimes consuming weeks. Within the past year, Birkhaug [1] introduced the antitoxin treatment of erysipelas, employing it in a series of sixty cases with results that were astonishing. In Bellevue Hospital, which maintains, perhaps, the largest and most active erysipelas service in the world, we are now using the antitoxin treatment to the exclusion of other methods. As our first trial, we employed an unconcentrated product provided gratuitiously by the Lederle Antitoxin Laboratories, through Dr. R. O. Clock, assistant director. Thus far, 131 cases have been treated by this antitoxin and the results have been remarkable. At the commencement of this work, it was agreed, as a control, that every other case of erysipelas was to be treated by antitoxin under the supervision of one of us (Symmers) while every alternate case was to be treated by Dr. William C. Lusk, using methods with which he had been working for years. After a period of critical observation, Dr. Lusk requested that all of the cases be treated by antitoxin—this after an experience in the treatment of erysipelas as large as, perhaps larger than, that of any other physician on the American continent.

#### PREPARATION OF SERUM

In the preparation of the unconcentrated antitoxin, as outlined by Dr. Clock, horses are immunized by subcutaneous injections with gradually increasing amounts of erysipelas toxin; also by intravenous injections of cultures of the erysipelas streptococcus isolated from typical cases of erysipelas. The toxin is obtained from broth cultures of the erysipelas streptococcus grown at 37 C. Phenol (carbolic acid) is added up to 0.5 per cent and the material allowed to sediment at room temperature. The supernatant fluid is siphoned off and used for injection into horses. After the immunizing treatment has continued for a period sufficient to produce a potent antitoxic serum, as indicated by potency tests applied to trial bleedings, blood is drawn under aseptic conditions from the jugular vein and allowed to clot and the clear serum siphoned off. The serum is then clarified by Buchner filtration and sterilized by Berkefeld filtration, after which the necessary tests are made.

Potency tests are made as follows:

Serial dilutions of the antitoxic serum are made with physiologic sodium chloride solution and these dilutions are mixed in equal volume with a dilution of erysipelas toxin of such strength that 0.1 cc. of the toxin-antitoxin mixture will contain one skin test dose of toxin.

The skin test dose of toxin is determined by intradermal tests applied to Saanen goats, 0.1 cc. of various dilutions of erysipelas toxin being injected.

Intradermal injections of 0.1 cc. of the various toxin-antitoxin mixtures are applied to Saanen goats. The highest dilution of antitoxin serum in the toxin-antitoxin mixture giving a negative skin reaction indicates the potency of the antitoxic serum. These tests are applied to trial bleedings of the horses as well as to all batches of the finished product.

#### INJECTION

For the introduction of the antitoxin into the body we now employ the intramuscular route exclusively. At the outset we essayed to use the antitoxin intravenously, and in five cases the results were little short of wonderful. In the sixth case, however, the patient, an alcoholic subject, immediately developed an alarming degree of anaphylactic shock from which, however, he rallied in the course of one and one-half hours. The seventh case was that of an obese woman whose muscles could not be reached by the hypodermic needle. Erysipelas involved almost the entire trunk. Her son, a physician, asked that antitoxin be given intravenously as a last resort. Two hours after injection the patient developed cyanosis and edema of the lungs, and death occured in a short time. Taking all things into account, therefore, we feel that the intravenous use of antitoxin is not only unnecessary in the great number of cases, but dangerous, and that the intramuscular is the route of preference.

#### DOSAGE

The dosage of the antitoxin is to be determined in each case since there are several factors which enter into the patient's reaction, such, for example, as the duration of the disease before the institution of treatment, the patient's resistance, the virulence of the infective agent, and perhaps most strikingly of all the part of the body involved. The earlier a patient comes under treatment, the more promptly is arrest of the disease to be expected, and it is likewise to be anticipated that the young, the vigorous and the temperate will yield to treatment more easily than the old, the debilitated and the debauched. In Bellevue Hospital, unfortunately, we have to deal with the latter type more often than with the former and, for that reason, we venture to predict that our results, although gratifying, will be surpassed. Finally, in the matter of dosage, we have but one fixed practice to commend, namely, to administer the antitoxin in excess rather than to attempt to minimize the dose. Consequently, as a routine, we have

* From the Fourth Surgical Service, Dr. Carl G. Burdick, director, and the Third Surgical Service, Dr. George D. Stewart, director, Bellevue Hospital.

1. Birkhaug, K. E.: Erysipelas, J. A. M. A. **86:** 1411 (May 8) 1926.

injected 25 cc. of the unrefined antitoxin at the moment of the patient's admission to the hospital, repeating the amount, usually at intervals of twenty-four hours, until the erysipelatous blush disappears, the edema is dissipated and the temperature is normal. As a result of this practice, we have sometimes been able to control

TABLE 1.—*Facial Erysipelas.*

| 111 Cases of Facial Erysipelas Treated with Antitoxin at Bellevue Hospital Between May 5, 1927, and June 23, 1927 | | | 92 Cases of Facial Erysipelas Treated Without Antitoxin at Bellevue Hospital Between May 5, 1926, and June 23, 1926 | | |
|---|---|---|---|---|---|
| 85.6% cured in 3-7 days<br>9.9% cured in 8-21 days<br>4.5% of the patients died | | | 33.7% cured in 2-7 days<br>47.8% cured in 8-18 days<br>12 % cured in 23-54 days<br>6.5% of the patients died | | |
| Cured in Days— | No. of Cases | Per Cent of Total | Cured in Days— | No. of Cases | Per Cent of Total |
| 3 | 19 | 17.1 | 2 | 2 | 2.17 |
| 4 | 26 | 23.4 | 4 | 8 | 8.69 |
| 5 | 22 | 19.8 | 5 | 5 | 5.43 |
| 6 | 14 | 12.6 | 6 | 8 | 8.69 |
| 7 | 14 | 12.6 | 7 | 8 | 8.69 |
| 8 | 6 | 5.4 | 8 | 6 | 6.52 |
| 9 | 2 | 1.8 | 9 | 6 | 6.52 |
| 11 | 1 | .9 | 10 | 14 | 13.21 |
| 13 | 1 | .9 | 11 | 2 | 2.17 |
| 21 | 1 | .9 | 12 | 4 | 4.34 |
| Deaths— | 5 | 4.5 | 13 | 5 | 5.43 |
| | | | 14 | 2 | 2.17 |
| | | | 15 | 1 | 1.08 |
| | | | 16 | 1 | 1.08 |
| | | | 17 | 2 | 2.17 |
| | | | 18 | 1 | 1.08 |
| | | | 23 | 1 | 1.08 |
| | | | 24 | 1 | 1.08 |
| | | | 26 | 1 | 1.08 |
| | | | 27 | 1 | 1.08 |
| | | | 28 | 2 | 2.17 |
| | | | 30 | 2 | 2.17 |
| | | | 34 | 1 | 1.08 |
| | | | 40 | 1 | 1.08 |
| | | | 54 | 1 | 1.08 |
| | | | Deaths— | 6 | 6.52 |

the disease by a single injection. Oftener two injections have been necessary, but most often we have used three injections of like amount, while in occasional instances from 100 to 150 cc. or even more has been given to a single patient. We have not observed any ill effects from this dosage other than nine cases of serum sickness coming on in from two to seven days after treatment and lasting from two days to a week.

## RESULTS

In the present series of 131 cases, the length of the patients' stay in the hospital has been reduced somewhat over 53 per cent. The individual figures vary, of course, depending on such factors as have already been pointed out, among which, however, the most striking is to be found in the part of the body involved. In this series, the facial cases outnumbered those of the extremities and trunk in the proportion of 5½ to 1. Of the 111 cases of facial erysipelas, as shown in table 1, 85.6 per cent were cured in from three to seven days and 9.9 per cent in from eight to twenty-one days, with a mortality of 4.5 per cent; whereas, in a series of ninety-two cases of facial erysipelas treated without antitoxin during the corresponding season of 1926, 33.7 per cent were cured in from two to seven days, 47.8 per cent in from eight to eighteen days, and 12 per cent in from twenty-three to fifty-four days, the mortality being 6.5 per cent. Of the twenty body cases treated by antitoxin, 60 per cent were cured in from three to seven days and 30 per cent in from eight to sixteen days, with a mortality of 10 per cent; whereas, of the fifteen cases of body erysipelas treated without antitoxin during the corresponding season of last year, 46.6 per cent were cured in from seven to fifteen days and 13.3 per cent in from twenty-five to fifty-eight days, the mortality being 40 per cent.

As far as the complications of erysipelas are concerned, the only one that developed in this series after the use of antitoxin consisted of subcutaneous abscesses occurring, usually, immediately under the skin corresponding to the distribution of the rash and varying in size from those of negligible proportions to extensive infiltrations of pus. The incidence of abscesses seems to be about the same whether antitoxin is used or not.

## MORTALITY

In the 15,277 cases treated at Bellevue Hospital during the last twenty-three years, the mortality from all causes was 10.1 per cent. In the present series of 131 cases treated by antitoxin, the mortality was 5.3 per cent. The value of the figure obtained from the larger series is impaired by the fact that it is humanly impossible to review such a vast array of records, to eliminate the contributing factors in the production of death, and to deduce from the remainder an intelligent conception of erysipelas as a direct cause of death. On the other hand, to draw any conclusions from such disproportionate numbers is hazardous. Suffice it to say that, in this series of 131 cases, death from all causes occurred seven times, or in 5.3 per cent; whereas, in a series of 107 cases treated without antitoxin during the corresponding season of last year, the mortality from all causes was 11.2 per cent.

## CONCLUSIONS

1. The antitoxin treatment of erysipelas marks an advance, the results of which are commensurate with those obtained in the treatment of diphtheria. As far as the immediate attack is concerned, erysipelas is now a vanquished disease. Beyond the immediate attack, however, the antitoxin treatment does not promise anything—it does not, for example, confer immunity, and

TABLE 2.—*Body Erysipelas.*

| 20 Cases of Body Erysipelas Treated with Antitoxin at Bellevue Hospital Between May 5, 1927, and June 23, 1927 | | | 15 Cases of Body Erysipelas Treated Without Antitoxin at Bellevue Hospital Between May 5, 1926, and June 23, 1926 | | |
|---|---|---|---|---|---|
| 60% cured in 3-7 days<br>30% cured in 8-16 days<br>10% of the patients died | | | 46.6% cured in 7-15 days<br>13.3% cured in 25-58 days<br>40 % of the patients died | | |
| Cured in Days— | No. of Cases | Per Cent of Total | Cured in Days— | No. of Cases | Per Cent of Total |
| 3 | 1 | 5 | 7 | 2 | 13.3 |
| 4 | 3 | 15 | 8 | 1 | 6.6 |
| 5 | 4 | 20 | 12 | 1 | 6.6 |
| 6 | 2 | 10 | 14 | 1 | 6.6 |
| 7 | 2 | 10 | 15 | 2 | 13.3 |
| 8 | 1 | 5 | 25 | 1 | 6.6 |
| 10 | 1 | 5 | 58 | 1 | 6.6 |
| 11 | 1 | 5 | Deaths— | 6 | 40 |
| 13 | 2 | 10 | | | |
| 16 | 1 | 5 | | | |
| Deaths— | 2 | 10 | | | |

| | |
|---|---|
| Percentage of deaths from all causes in patients treated with antitoxin | 5.3% |
| Percentage of deaths from all causes in patients not treated with antitoxin | 11.2% |
| Average number of days in hospital of all patients treated with antitoxin | 5.6 days |
| Average number of days in hospital of all patients not treated with antitoxin | 12.1 days |

recurrent attacks occur with the same freedom as in erysipelas treated by other methods; nor does it appear to diminish the incidence of complications, such as the abscesses which so frequently follow in the wake of this disease. Moreover, the antitoxin method confers enormous economic benefit on both patient and hospital, the patient's period of disability being reduced by slightly more than 50 per cent. At the same time it permits reduction in the personnel of the nursing staff

to the extent of about 60 per cent and effects a notable saving of bed linen and sleeping garments by doing away with the destructive effects of ointments and similar local applications.

2. Facial erysipelas responds more readily to treatment by antitoxin than erysipelas of the trunk or extremities. In a series of 111 facial cases treated at Bellevle Hospital, 85.6 per cent of the patients were cured in from three to seven days, 9.9 per cent were cured in from eight to twenty-one days, and 4.5 per cent died. In a series of ninety-two cases of facial erysipelas treated at Bellevue Hospital without antitoxin during the corresponding season of 1926, 33.7 per cent of the patients were cured in from two to seven days, 47.8 per cent were cured in from eight to eighteen days, 12 per cent were cured in from twenty-three to fifty-four days, and 6.5 per cent died. In a series of twenty cases of erysipelas of the trunk or extremities treated by antitoxin, 60 per cent of the patients were cured in from three to seven days, 30 per cent were cured in from eight to sixteen days, and 10 per cent died. In fifteen cases of body erysipelas treated without antitoxin at Bellevue Hospital during the corresponding season of last year, 46.6 per cent of the patients were cured in from seven to fifteen days, 13.3 per cent were cured in from twenty-five to fifty-eight days, and 40 per cent died.

3. The intramuscular route offers the best method of introducing the antitoxin. Intravenous injection, we think, is dangerous and is to be employed only in desperate circumstances.

## IODODERMA FROM IODIZED OIL *

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Since the introduction by Sicard and Forestier [1] of iodized oil as an aid in roentgen-ray diagnosis, it has been very widely used in connection with the roentgen ray, not only in the spinal canal but also in various other organs and structures of the body as a diagnostic procedure.

The French preparation lipiodol, and the Danish preparation iodumbrin, are said to be very closely similar in that they contain approximately equal amounts of iodine (40 per cent), and in that they are both highly stable. The relative stability of these compounds is evidenced by the few reports of untoward symptoms following their use during the five years of their employment.

Here and there one finds fever and dyspnea reported immediately after the use of these oils. O. Lichtwitz [2] reported a rapidly progressive pulmonary tuberculosis which flared up after their use, and Moeller and von Magnus [3] and Armand-DeLille and Moncrieff [4] have reported acute iodism, the case of the latter having been accompanied by edema of the larynx.

Iodized oil when introduced into the body is supposed to be eliminated mechanically, that is, by coughing, expectorating, etc., or by absorption and elimination through the regular body channels. That an amount sufficient to be injurious can be absorbed is shown by the cases of acute iodism already reported. By acute iodism I presume is meant symptoms referable to the gastro-intestinal and upper respiratory tracts. In none of the cases reported have I been able to find any reference to an accompanying iododerma.

Moeller and von Magnus,[3] in their work with iodumbrin, found iodine in the urine six hours after the injection of the oil; its elimination reached its peak at twenty-four hours, and no trace could be found after six days. Iglauer [5] also states that iodine is found in the urine no later than six days following the use of lipiodol. It is well known from statements already published [6] and from the experience in our own roentgen-ray department, however, that this substance may remain in the lungs, at least, many weeks.

I recently saw a case of iododerma in which lipiodol is the most likely source of the iodide skin reaction.

D. C., a white man, aged 57, was referred on April 13, 1927, to the department of dermatology and syphilology from the tuberculosis unit for diagnosis and advice regarding a skin eruption. Examination revealed an acneform eruption involving the face, upper trunk and arms, such as is commonly caused by iodide or bromide, and several members of the staff, including our chief, corroborated the diagnosis.

Because the halogen group is at this time under investigation in our clinic, bromine and iodine were searched for in the patient's urine. No bromine was found, but iodine was present in large quantities, and we were especially interested to learn why a patient in the tuberculosis unit was receiving iodide.

No iodide was being given the patient, and iodized salt was not being used in the unit. Close questioning of the patient failed to obtain a history of taking medicine not given him by the physician in charge.

Thorough investigation of the patient's record since his admission on Dec. 22, 1926, reveals three possible sources of iodine. Dec. 29, 1926, he received gallbladder dye (tetraiodophenolphthalein) by mouth; from Jan. 11 to Jan. 16, 1927, he received potassium iodide, 15 grains (1 Gm.), three times a day, and on March 29 his lungs were injected with lipiodol.

The eruption for which the patient was referred appeared, April 6 or 7.

Examination of the urine and saliva, April 13, 14 and 15, were strongly positive for iodine, and reexamination of the chest by roentgen ray, April 14, showed the presence of lipiodol in the lung bases.

Since this patient had received iodine from sources other than lipiodol, it might be argued that this case is not clearly due to lipiodol. However, all other iodine preparations had been administered by mouth, at least three months previous to the appearance of the eruption. It is definitely established that iodine preparations administered by mouth are rapidly absorbed and eliminated, and it is not possible that these preparations could have caused the eruption. On the other hand, this eruption appeared about nine or ten days following the injection of lipiodol, and at the time of the examination tests of body fluids gave evidence of continued absorption of iodine from some source. Roentgen-ray examination demonstrated the presence of lipiodol in the lungs.

Whether the iodine was actually being absorbed from the lungs, or whether it was coming from sputum swallowed and broken down in the gastro-intestinal canal, is impossible to determine. The fact remains that the patient was absorbing enough iodine to give him an iododerma, with lipiodol the most likely source.

* Studies and Contributions of the Department of Dermatology and Syphilology of the University of Michigan Medical School, service of Dr. Udo J. Wile.

1. Sicard, H., and Forestier, J.: Methode générale d'exploration radiologique par l'huile iodee (lipiodol), Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 463 (March 17) 1922.

2. Lichtwitz, O.: Injury by Lipiodol as Contrast Substance in Pulmonary Tuberculosis, Wien. klin. Wchnschr. **39**: 133 (Jan. 28) 1926; abstr. J. A. M. A. **86**: 1104 (April 3) 1926.

3. Moeller and von Magnus: Investigation of Bronchial Affections by Means of Iodine Preparations (Iodumbrin and Lipiodol) Acta med. scandinav. **62**: 174, 1924.

4. Armand-DeLille, P. F., and Moncrieff, A.: The Use of Lipiodol in the Diagnosis of Bronchiectasis, Brit. M. J. **2**: 7 (July 5) 1924.

5. Iglauer, Samuel: Use of Injected Iodized Oil in Roentgen-Ray Diagnosis, J. A. M. A. **86**: 1879-1884 (June 19) 1926.

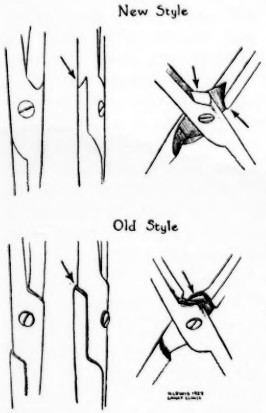
6. Iglauer, Samuel, in discussion on paper referred to in footnote 5.

# Clinical Notes, Suggestions and New Instruments

## A HEMOSTAT FOR GOITER SURGERY

FRANK H. LAHEY, M.D., BOSTON

In seeking a hemostat some years ago which was suitable for goiter surgery, the one marked "old style" in the accompanying illustration was designed and manufactured for our use. It was necessary to have this type of hemostat especially manufactured, as there was no snap on the market with a sufficiently sharp point for plunging them into the thyroid gland and at the same time possessing transverse stamping extending from the top to the heel of the jaws of the clamps. These hemostats have been employed in the clinic for years with great satisfaction, with the exception that catgut ties as they are passed about the handle of the hemostat and pulled downward toward its tip frequently catch in the fissure made by the open joint where the two limbs of the forceps are locked with a screw.




Hemostat for goiter surgery: The ligature catches in the deep slot at the joint of the old snap as it is passed down the handle of the hemostat. This slot is the result of the right angle joint in the old snap; with the beveled joint and overhanging shoulder of the new snap no slot is present and the tie is guided smoothly over the joint toward the point of the hemostat, and the annoyance of the ligature catching here is avoided.

To overcome this difficulty, the forceps shown in the illustration "new style" were designed. They were manufactured for us by V. Mueller & Co. of Chicago. Since employing them we have had no further trouble with ligatures catching in the hooks, which in the course of several thyroid operations during a morning, necessitating a great many ties, becomes a really annoying incident.

The illustration demonstrates quite clearly the principle of the overhanging shoulder in the joint of the new snap as compared with the open joint of the old snap.

605 Commonwealth Avenue.

## SUBSTITUTE FOR THE MERCURIAL SPINAL MANOMETER

G. J. VISCHI, PH.C., M.D., STOCKTON, CALIF.

The importance of estimating accurately the pressure of the cerebrospinal fluid at lumbar puncture by means of a mercurial instrument has received increasing attention during the past decade. It is now recognized as the only safe method of controlling the pressure of the cerebrospinal fluid during therapeutic drainage. Not more cerebrospinal fluid should be removed than will lower the pressure by one half; in this manner, there is no danger of lowering the spinal pressure to a degree that might precipitate medullary complications in the presence of high intracranial pressure.

Many general practitioners are desirous frequently of making special tests, but they are often handicapped for the lack of the special instruments used ordinarily by the specialists; the spinal mercurial manometer is such an instrument, but I find that in its place an ordinary mercurial sphygmomanometer used for blood pressure readings can very easily be substituted and most satisfactorily so. While studying the cases in the clinic of Dr. William Sharpe of the New York Polyclinic Medical School and Hospital, I suggested to him the use of the U-shaped mercurial tube of the blood pressure apparatus of the Baumanometer type as a substitute for the Landon and Fleischer spinal mercurial manometers, and since my suggestion he has used this method in a large series of cases and has found it an excellent method in every way.

### TECHNIC OF HANDLING

The mercurial sphygmomanometer is temporarily slightly altered with little loss of time into its necessary form as follows: The rubber tubing is disconnected from the instrument; a length of tubing approximately 9 inches long is substituted and one end is connected with the mercurial U-shaped tube and the other end fitted with a male metal adapter left free until connected. Then an equal length of tubing is fitted with a female metal adapter that connects into the male adapter very accurately so that there is no loss of air pressure. Its free distal end is fitted with a spinal needle adapter that is used to connect with the lumbar puncture needle.

The sphygmomanometer and its rubber tubing are handled by the unsterile nurse, and after the physician has performed the lumbar or ventricular puncture and attached the rubber tubing to it, it is a simple matter for the unsterile nurse to attach the tubing of the sphygmomanometer and thus an accurate reading of the cerebrospinal fluid can be obtained. The normal pressure is from 6 to 8 mm.

607 Medico-Dental Building.

# New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

**ACETARSONE** (See New and Nonofficial Remedies, 1927, p. 83).

**Acetarsone-Abbott.**—A brand of acetarsone-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, Ill. No U. S. patent or trademark.

*Tablets Acetarsone-Abbott, 0.25 Gm.*

**ERYSIPELAS STREPTOCOCCUS ANTITOXIN** (See New and Nonofficial Remedies, 1927, p. 337).

H. K. Mulford Co., Philadelphia.

*Erysipelas Streptococcus Antitoxin (Concentrated)-Mulford.*—This antitoxic serum is prepared by injecting horses intradermally with strains of hemolytic streptococci isolated by H. Amoss from human cases of erysipelas lesions, bleeding the horses and when test bleedings show the serum to have reached the desired potency, separating the serum, sterilizing it, and preserving by the addition of 0.35 per cent of phenol. The product is then concentrated by a process which preserves both the antitoxic and antibacterial properties claimed to be in the original serum. Erysipelas streptococcus antitoxin (concentrated)-Mulford is administered in doses of 20 cc., preferably given intravenously, and repeated within twelve to twenty-four hours if indicated. Marketed in packages of one 20 cc. syringe with sterile, glass-encased needle.

**CHOLERA VACCINE** (See New and Nonofficial Remedies, 1927, p. 358).

H. K. Mulford Company, Philadelphia.

*Cholera Bacterin (Cholera Vaccine).*—(See New and Nonofficial Remedies, 1927, p. 358.) Also marketed in packages of one 20 cc. vial (M155-4) containing 1,000 million killed cholera vibrios per cubic centimeter.

**Posture and the Development of Trunk Muscles.**—Too much emphasis cannot be placed on the development of the trunk muscles, especially those of the abdomen, as a basic necessity of good posture, and it is in this special feature in which most of the systems of gymnastics are weak.—Sanderson: Introduction to Thomas and Goldthwait's Body Mechanics and Health, p. 8.

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SATURDAY, SEPTEMBER 10, 1927

## DIGITALIZATION

The term "digitalization" was coined to signify the full pharmacologic action of digitalis, the action of the drug to the limit of safety. In other words, it represents digitalis poisoning, much as profound intoxication represents the poisoning from alcohol. Digitalization has been used extensively in the treatment of auricular fibrillation, and more recently it has become prominent in the treatment of pneumonia. At present digitalization is frequently developed in many types of heart disturbance and when it is feared that the heart will give out under severe strain from some serious acute infection. So-called cumulative action of digitalis, when it is administered more rapidly than it can be excreted, with a piling up of the digitalis in the system, has long been described. The symptoms were, and are, the same as are now caused rapidly by digitalization. It has always been recognized that in heart conditions in which digitalis was thus used the so-called cumulative effect was not desired; the drug was immediately stopped when symptoms from such accumulation occurred. Not infrequently in serious heart conditions and in serious illness, as pneumonia, digitalis used to cumulative effect may have hastened or perhaps caused death.

Frequently a primary symptom of beginning digitalization is headache or, at least, a fulness or tight feeling in the head. When this symptom is well in evidence the digitalis is generally stopped by the therapist. Unfortunately, however, this symptom is not always present. Complete digitalization will cause nausea, vomiting, complete loss of appetite for days, disturbance of vision, and generally a diminished secretion of the urine, although in the early stages of the large doses of digitalis the excretion of urine is increased. With digitalization the pulse should be slowed, but sometimes unfortunately the pulse becomes irregular both in volume and in rate and heart block may occur. The vomiting, while partially due to the slight irritant action of the drug in the stomach, seems largely due to a reflex from the nerve centers and perhaps to the intrinsic action of the drug on the heart. It is not necessary to describe here the action of digitalis on the heart or its value in valvular disease with broken compensation. Parenthetically, digitalis may be of benefit in certain forms of high blood pressure and in many cases will not increase systolic pressure.

Clinicians are divided as to the value of digitalis in pneumonia, but all are apparently agreed that such treatment should be given in the first days of the pneumonia or not at all. Digitalis does not act well when the myocardium has been weakened by acute infection or prolonged fever. Those who advocate digitalization in the early stages of pneumonia believe that it protects the heart throughout its severe trial during the pneumonic process. There can be no question of the value of digitalis in ordinary doses when in the beginning of pneumonia there is "prune-juice" expectoration. Whether digitalization is indicated even in such cases is also, however, a subject for discussion.

Laboratorial and clinical investigations have developed the digitalization amount of digitalis to be, for a 150 pound (68 Kg.) adult weight, a minimum of 22½ grains (1.45 Gm.) and a maximum of 33 grains (2.2 Gm.). Half the minimum dose may be given at once and then 2 or 3 grains (0.13 or 0.2 Gm.) every six hours, or the other half of the minimum dose may be given on the second day. If the patient needs more digitalis for digitalization, the amount is gradually increased by 2 or 3 grains, perhaps every six hours, until symptoms of digitalization appear. These symptoms depend on the inability of the system to excrete digitalis as fast as it is being ingested. The symptoms of digitalization will last for several days until the major part of the digitalis has been excreted. Some digitalis, however, will remain in the system for from one to two weeks, during which time any extra doses of digitalis will prolong the digitalization symptoms. Digitalization should not be attempted if the patient has previously been taking digitalis even in fair-sized doses, as the symptoms caused may be more severe than is desired. The dosage advised, estimated on weight, must of course be greatly modified with frail, underweight persons. An overweight person, when that weight is largely due to fat, must not be given the dosage according to his weight. The condition of the patient and his ability to excrete digitalis must be given special consideration. Any condition that will diminish the activity of the kidneys and liver must of necessity cause more rapid storing of digitalis and also a slowed excretion of the digitalization dose. Many times this may cause serious symptoms.

Digitalization means digitalis poisoning. Such poisoning should not be inaugurated except by a careful determination of the exact condition of a patient to be treated. The general practitioner should not thoughtlessly digitalize his patient unless he has hospital or other facilities for determining the exact condition of his heart and his excretory ability. Even

with great care some hearts will be digitalized when the heart muscle or coronary circulation cannot withstand such treatment without the development of dangerous symptoms.

## RESPIRATORY ANAPHYLAXIS

The phenomena of hypersensitiveness to foreign proteins and the manifestations of anaphylaxis are familiar. The better recognition of the conditions under which the organism may react vigorously as the result of sensitization has helped to explain many instances of what have heretofore been regarded as idiosyncrasies through lack of a more precise understanding of their etiology.

So-called anaphylaxis in animals has been extensively studied within the past two decades and has been found to be closely related to certain types of idiosyncrasy or allergy in man. The occurrence of bronchial symptoms in anaphylactic animals early prompted the suggestion that bronchial asthma in man might represent a specific response of a sensitized person to an allergic substance. The explanation of how sensitization could be brought about in the case of certain substances like horse dander, known to be provocative of asthmatic attacks, has not readily been forthcoming. The oral path of introduction was long ago shown to be ineffective under ordinary conditions; and while the parenteral injection of foreign protein is an almost never failing mode of securing allergic sensitization, it does not represent a possibility of everyday life. Consequently it was an important step in advance when the production of anaphylaxis through absorption from the respiratory tract was demonstrated a few years ago. This represented the possibility of "acquired sensitization" in the human being. It has been further substantiated at the University and Bellevue Hospital Medical College by Ratner, Jackson and Gruehl.[1] They have demonstrated that a state of protein sensitivity can be induced in animals through direct inhalation of dry animal emanation and that a symptom complex resembling bronchial asthma can subsequently be initiated through inhalation of dry horse dander. In other words, the nasal route can, if conditions are proper, serve as a portal of entry for foreign proteins, in the dry or liquid state, in the same way as a parenteral injection can do so.

Perhaps one should henceforth distinguish respiratory anaphylaxis from parenteral anaphylaxis as the New York investigators do. They add that the experimental data in the animal and the clinical evidence in the human being are now shown to be so closely related as to suggest the point of view that anaphylaxis in the animal and asthma in the human individual are fundamentally the same. This should make the investigation of an effective method of treatment more promising.

1. Ratner, Bret; Jackson, H. C., and Gruehl, H. L.: Respiratory Anaphylaxis, Am. J. Dis. Child. **34**: 23 (July) 1927.

## INTERDEPENDENCES IN THE MEDICAL FIELD

One cannot read recent professional contributions to medical literature or follow the best practices of physicians in any field without becoming impressed with the interdependence of the various disciplines and underlying sciences involved. A recent issue of THE JOURNAL (July 30) serves to illustrate what may be termed breadth, in contrast with the depth, of interest that is expected to engage the attention of the devotee of modern medicine. Thus, the study of rickets (p. 337) nowadays carries the investigator beyond the field of morphologic and chemical pathology into the domains of physics and organic chemistry. The implications of sunshine as an agent in physical therapy and the genesis of ultraviolet rays need to be appreciated in sufficient detail to render their application in therapy both intelligible and effective. The establishment of the antirachitic action of various irradiated foods and chemical substances not only in the laboratory but also soon afterward in the clinic has focused attention on the organic compounds that become activated—to the sterols and allied substances which were merely chemical curiosities to the medical biochemist of a generation ago. It is no longer sufficient to attempt the mastery of an occasional new drug of bewildering chemical complexity; the details of the composition of everyday foods present an equally pressing mental problem.

Again, the effective diagnosis of doubtful cases of bromism, dependent on the mastery of a new technic for the detection of bromine in minute quantities in the body fluids, has made it possible to establish definitely the etiology of toxic psychoses without skin lesions in which ingested salts of bromine were the insult (p. 340). Mere "bedside observation" is of minor avail in such baffling conditions. All the varied contributions to our knowledge of insulin and its functions, which the physiologist and pathologist have developed through masterful cooperation, may now be drawn on to assist in the elucidation of obscure instances of hypoglycemia attributable to hyperinsulinism (p. 348). The phenomena of a patient requiring hourly doses of glucose to prevent convulsions from hypoglycemia while the liver responds normally to the usual tests of hepatic function call for diagnostic resourcefulness beyond the capacity of the "closed mind."

In the same issue (p. 355) a dental surgeon has made a vigorous plea for better cooperation between the dentist and the physician in correcting systemic infections that have their origin in the oral cavity. He urges that dental pathology should secure a better status—it now has none—in the medical curriculum. To many it will be gratifying to learn that "patients suffering from a focal infection which has its origin in the mouth cavity do not necessarily have to have their teeth removed." Has medicine been sufficiently tolerant of the dentist in the past? Has the dentist

become sufficiently medically minded in some of his outlook?

Of late, much has been said about the treatment of certain types of tuberculosis by "light." The overenthusiasm in this field of therapy would soon be corrected if medical thinking and doing could be prevented from becoming a one-track activity. Without deprecating the value of solar therapy, Mayer (p. 361) has uttered this corrective comment indicative of the interdependence of medical specialties:

> To believe that sunlight or artificial sources of light will cure all forms of "surgical" tuberculosis; to be unduly optimistic about this treatment and to consider it a specific form of treatment; to use it without sound medical guidance and adequate equipment, and, finally, to employ it to the exclusion of rest and the hygienic-dietetic regimen, eliminating orthopedic measures or the occasional necessary surgical intervention in bone and joint tuberculosis, is bound eventually to dishearten many sufferers and to bring discredit on an otherwise eminently desirable method of treatment.

Never has there been greater need of forces that will help to integrate the rapidly growing knowledge in the field of medicine; never has there been greater danger that the development of the "specialties" will lead to a deplorable narrowing of medical vision. A single mind can no longer envisage the world of requisite information; but a forceful attitude can help to preserve the spirit of sympathetic collaboration in clinical work.

### DERMATOSES AND ULTRAVIOLET IRRADIATION

The unmistakable demonstrations of the potent effects of exposure to direct sunlight and likewise to ultraviolet rays from artificial sources have attracted widespread attention not only in the medical profession but also among the laity. There is something peculiarly satisfying in the conviction that such relatively simple methods of physical therapy can promote human well being in noteworthy ways. The manifestations of rickets, a disease in which heliotherapy has proved to be singularly potent, are so apparent and so commonly recognized that the benefits derived from irradiation in the course of this malady inevitably challenge notice. As so often happens under such circumstances, a demonstrated remedial agent is liable to be magnified, by the enthusiasts on the one hand and the unscrupulous on the other, into a universal panacea.

The quacks and irregular practitioners are already engaged in vigorous promotion of "rays" of all sorts for the relief of the most diverse symptoms. The practice is further accelerated by the propaganda of manufacturers of a variety of light-making machines. Accordingly this is an opportune time to recall that undue exposure to the sun's rays as well as other forms of irradiation is by no means always an innocuous experience. Inflammatory conditions are familiar as a reaction to excessive sunlight with the production of dermatitis solare. They have usually been attributed to the actinic parts of the spectral rays. According to Greenbaum[1] of Philadelphia, a mild or moderate susceptibility of certain persons to the rays of light in the violet end of the spectrum is not uncommon, though severe reactions are rare. He has pointed out, furthermore, that under certain circumstances a potential susceptibility or an existent cutaneous disturbance due to light sensitization may be made decidedly worse by artificial ultraviolet radiation.

According to Greenbaum, when ultraviolet therapy is to be administered to infants, testing doses to determine tolerance or sensitivity are advisable. It is well to recall the existence of chemical substances that seem to sensitize the organism to the action of light. The development of photosensitive compounds under abnormal or undetermined conditions may result in photodynamic effects from radiation that is generally regarded as innocuous. Sunburn or erythema solare is only one of the consequences of exposure to light rays; more serious effects are within the range of possibility and should not be disregarded. Therapeutic irradiation of the body calls for professional intelligence.

## *Current Comment*

### THE STANDARD LABORATORIES FIASCO

About thirteen years ago a concern known as the Truax Laboratories was operating in Chicago. Its method was to sell to dispensing physicians individual packages containing stock prescriptions. When the physician had spent $100 with the Truax Laboratories, he received a "profit-sharing debenture of $25." Later the name of the concern was changed to "Standard Laboratories, Inc.," and the methods of doing business were also changed. The Standard Laboratories, Inc., got dispensing physicians to deposit $100 with it, which was to be "taken out" in drugs. When the doctor had bought $100 worth of drugs he was issued a "$25 debenture profit-sharing certificate" that was worth nothing until 30,000 of them had been issued, at which time it would be accepted as stock in the company. The objections to such a scheme would seem to be rather obvious, and yet, apparently, many physicians went into it. In 1919, when the Standard Laboratories wished to advertise in THE JOURNAL, it was told that its methods were not such as would commend themselves to the ethical conscience of the profession. It was pointed out that the Principles of Medical Ethics states that "it is unprofessional . . . to accept rebates on prescriptions." Patently, the physician who held stock in the Standard Laboratories or who shared in its earnings was, in effect, accepting a rebate every time he prescribed its products. It was further pointed out that the public is not getting a square deal when physicians are financially interested in products they prescribe for the sick. The principle involved is on a par with that

1. Greenbaum, S. S.: Dermatoses Due to Light Sensitization, Am. J. Dis. Child. 34: 81 (July) 1927.

of having a judge hand down an opinion relative to the innocence or guilt of a corporation in which he, the judge, held stock. While doubtless judges could be found who would give unbiased judgments in such cases, and while there are physicians who would not let financial interest in a drug concern affect their decision as to what should be prescribed, nevertheless the practice is bad. In THE JOURNAL'S files on the Standard Laboratories there is a very ornate specimen of the concern's "7 per cent Gold Debenture Bond." It is dated October 2, 1922, and is due October 2, 1927. It is printed in the most approved orange colored ink, with handsome coupons numbered from 1 to 10. Present interest in this matter is stimulated by a small news item that appeared in the Chicago *Tribune*, August 24, to the effect that Standard Laboratories, Inc., had just filed a voluntary petition in bankruptcy in the United States District Court. Its liabilities are given as over $602,000; its assets are said to be but slightly over $75,000. The attorney representing the concern is quoted as saying, "The majority of creditors are country physicians . . . !"

## POSSIBLE COLORIMETRIC TOXIN TITRATION

Without the production and accurate standardization of toxins, much of modern therapeutics would be impossible. Up to now the biologic method has been the preferred mode of standardization of these products, the M. F. D., or minimum fatal dose, for a given batch of toxin being the usual standard. This dose is defined as "the least quantity of toxin which, when injected subcutaneously, will kill a guinea-pig weighing 250 grams in ninety-six hours."[1] The method involves the use of a number of dilutions of toxin, the inoculation of many guinea-pigs, much calculation, and almost endless clerical work and observation. Although the procedure is satisfactory as far as quality of the product is concerned, it may be described, paradoxically, as only relatively accurate. Chemical reactions are susceptible of better control than biologic tests, and are uniformly more rapid and more exact. A chemical method of titrating the strength of toxins, therefore, is desirable. Possibly such a procedure has been discovered by Mishulow and Krumwiede,[2] in the course of other work. While they were investigating different agents for detoxifying diphtheria toxin, they read Osman's[3] report on the effect of gold chloride in preventing the toxic reactions following injections of bacteria. Accordingly, these investigators tested the effects of different concentrations of gold chloride and noted that color reactions occurred. Thereupon they attempted to determine whether or not a quantitative relationship existed between the strength of the toxin and the color produced. Graded mixtures of gold chloride and diphtheria and tetanus toxins were prepared. Numerous tests were made, including comparisons with the biologic procedure. "By means of a colorimetric reaction obtained by adding gold chloride to toxic-broth filtrates," the authors conclude, "we have been able to obtain toxin values which in most instances closely approximate the toxin values obtained by animal tests." If subsequent work bears out these preliminary impressions, another major discovery will have been added to the credit of scientific medicine.

1. Standard Methods of the Division of Laboratories and Research of the New York State Department of Health, Baltimore, Williams and Wilkins Company, 1927, page 313.
2. Mishulow, L., and Krumwiede, C.: A Colorimetric Reaction Between Gold Chloride and Toxins Apparently Indicative of Toxic Strength: A Preliminary Report, J. Immunol. **14**: 77 (July) 1927.
3. Osman, M. B.: Experimental Immunization with Bacteria Detoxicated by Gold Chloride, J. Immunol. **13**: 243 (March) 1927 (cited by Mishulow and Krumwiede).

# *Medical News*

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

## CALIFORNIA

**Veterans' Hospital Opens Diagnostic Center.**—There will be opened, about October 1, at the U. S. Veterans' Bureau Hospital, Palo Alto, a 150 bed diagnostic center erected for the purpose of assembling physicians noted in their specialties to make diagnoses and prescribe treatment in unusually difficult cases. These specialists will serve largely through a patriotic impulse. The photographs show a ward building, the tuberculosis building, and the new diagnostic center. There are, in all, forty-four buildings in use at the hospital, with a total capacity of 1,010. The hospital is on the site of the old Camp Fremont Hospital in use during the World War, 2 miles north of Palo Alto between San Francisco Bay and the Coast Range Mountains in the Santa Clara Valley. The staff comprises fifteen full-time medical officers, two dentists, thirty graduate nurses, three dietitians, six physical therapy aides, thirteen occupational therapy aides, one psychiatric social worker and one contact officer. The hospital enjoys also the service of the Red Cross, the Knights of Columbus, the Jewish Welfare Society and many veterans' organizations. The reservation of about 100 acres represents an investment of approximately $5,000,000. There are at present only two other diagnostic centers for the veterans' hospitals throughout the country, one in Cincinnati and one in Washington. The diagnostic center to be opened at Palo Alto is to be in charge of Dr. Walter B. Swackhamer, who has been the medical officer in charge of the veterans' hospital at Portland, Ore. This will serve the western part of the country. Obscure

Tuberculosis ward.

New diagnostic center.

cases will be transferred here for study by especially trained men. The medical officer in charge of the hospital is Dr. Percival G. Lasche.

## CONNECTICUT

**Fifteen Eclectics Lose Appeals.**—The appeals of fifteen eclectic physicians recently filed in superior court at New Haven were dismissed because of fraud, August 30, it is reported, and the appeals of four other eclectic physicians were sustained. The appeals followed the action of the state department of health in revoking these licenses to practice. Those who lost their appeals because of "certain frauds on the part of the appellants" were Samuel Slabotsky, Samuel Posner, David K. Aronson, James Bockman, Roy A. Long, Alfred C. Von Sassenhofen, William D. MacCormack, Raymond C. Prisque, Michael M. J'Anthony and Aurelius R. Dejanis. Those who lost their appeals because "there was fraud on the part of the St. Louis College of Physicians and Surgeons from which the appellants graduated" and "because these appellants had knowledge of the same and were guilty of fraud in connection with their admission and education there, and, also among other acts, in obtaining their certificates from this state pursuant to their examination before the eclectic board" were Anthony Campo, Modestino Coppola, William Feldman, William Levy and Etamer A. Mower. The four whose appeals were sustained were Julius Karp, Ralph F. Long, James W. Bush and Allie J. Goodwin. The judge said in part, it is reported, with regard to the first three of the last four that he was unable to find any fraudulent practice by or imputable to these appellants. Goodwin's appeal was sustained because the judge was "satisfied that he was acting in good faith and without any intention to deceive." Judge Brown in his memorandum of decision disposed of the appeal of Feldman first, saying, in part, that the "brazen fraud of Feldman in obtaining his certificate and fight to retain it garnished by his obviously perjured testimony during this trial leads me to dispose of his appeal first in the fewest possible words"; as to Campo, Cappola, Lerner, Levy and Mower, he said in part that "the evidence is clear that their preparation and training for the practice of medicine and surgery was poor, itinerant and incomplete, at the best, and their record as failures upon the way quite voluminous." In discussing the other appellants, Judge Simpson said, in part, with regard to Slabotsky that "the court has considerable sympathy for this appellant. He evidently started with an honest endeavor and intention to obtain a medical education. He entered the Kansas City College of Medicine and Surgery and was graduated from that institution, May 7, 1920. At the school, however, he fell under the baneful influence of Dr. Alexander. . . . In his second application before the Connecticut board he swore that he had had one year of college work as preliminary education which was admittedly false and evidently put in with the help of Alexander to bolster up his standing before the Connecticut board. This representation was material and was done for the purpose of deceiving the board."

## GEORGIA

**Dr. Bush Retires from Teaching.**—Dr. Arthur D. Bush, Decatur, professor of pharmacology, Emory University School of Medicine, Atlanta, since 1923, will retire from that position at the beginning of the fall term on account of ill health; his successor has not yet been appointed. Dr. Bush is a native of Massachusetts; he graduated from Emory University, is the author of several textbooks on pharmacologic subjects, and is now writing a "College Textbook of Physiology."

**Tenth District Society Meeting.**—About 100 persons attended the barbecue dinner given by the Tenth District Medical Society at Carmichael's Pond, August 24, prominent among whom were the ladies of the Richmond County Medical Society's Auxiliary. Entertainment was furnished by Deas' quartet and a dancing class. The toastmaster was Dr. Eugene E. Murphey, Augusta. This part of the program followed a scientific session at the Richmond Academy of Medicine where, among others, Dr. Allen H. Bunce, Atlanta, read a paper on "Pernicious Anemia"; Dr. John W. Daniel, Savannah, "Value of Metabolic Chemistry to the Surgeon"; Dr. William Weston, Columbia, S. C., "Food as a Factor in Preventive Medicine," and Dr. Elmore C. Thrash, Atlanta, "Cardiac Disease"; Dr. Lewis H. Wright, Augusta, "New Obstetric Procedures," and Dr. Charles C. Harrold, Macon, "Benign Strictures of the Esophagus." Dr. William J. Cranston, Augusta, was elected president of the society, and Dr. Charles D. Ward, Augusta, secretary.

## ILLINOIS

**Court Holds Tuberculosis Tax Invalid.**—Judge McCoy, in county court at Decatur, August 5, ruled that the special tax for the maintenance of tuberculosis work was invalid on account of the failure of the county board of supervisors to follow the law in submitting the proposal to the voters in 1924. By the authority of this election, the tax was raised in excess of the limit which the county may assess. The tuberculosis tax has been the means of support of the county sanatorium, and last year amounted to about $77,000. The authority for the tax, which has been collected since 1921, expired in five years, and the election, which has been declared invalid, was held to renew the authority. The decision, if sustained in higher courts, is of great local importance.

### Chicago

**Personal.**—Dr. Harry F. Wilkinson has been appointed assistant professor in the department of surgery, in charge of work in otolaryngology at the medical school of the University of Chicago; Dr. Wilkinson has been a fellow in otolaryngology at the Mayo Clinic for about three years.——Dr. Vincent J. O'Conor was recently elected president of the Chicago Urological Society; Dr. John P. O'Neil, vice president, and Dr. Russell D. Herrold, secretary-treasurer.

**Dinner to Sir Thomas Oliver.**—A dinner in honor of Sir Thomas Oliver, Newcastle-upon-Tyne, England, was given at the University Club, September 2. Among those present were Drs. Frank L. Rector, Chicago, editor of the *Nation's Health;* Thomas R. Crowder of the Pullman Company; John M. Dodson, secretary, bureau of public health, American Medical Association; William H. Bohart, Frank E. Pierce, William A. Evans; Franklin H. Martin of the American College of Surgeons; G. Henry Mundt, president, Illinois Medical Society; Isaac D. Rawlings, Springfield, state health officer; Oscar Dowling, New Orleans, Louisiana state health officer, and Frederick L. Hoffman of the Prudential Life Insurance Company. Sir Thomas, who is in this country to study the progress made in industrial medicine, gave a brief account of his work in the prevention of lead and phosphorus poisoning and of his study of cancer of the groin among cotton spinners.

## MAINE

**Personal.**—Dr. Arthur R. Daviau has been appointed health officer of the city of Waterville and the town of Vasselboro to succeed Dr. W. J. Young, resigned.——Dr. Warren B. Sanborn has been appointed superintendent of the Augusta General Hospital, Augusta, effective, September 1. Dr. Sanborn has practiced medicine for about twenty years in that community, and is medical examiner of Kennebec County. He served during the World War. His father, the late Dr. Bigelow T. Sanborn, is said to have been one of the founders of the Augusta General Hospital.

## MINNESOTA

**Hospital News.**—The Itasca County Hospital, Grand Rapids, is to build an addition at once to cost not more than $28,000.——The George B. Wright Memorial Hospital, Fergus Falls, is to build a twenty-bed addition; its present capacity is forty-five; the hospital is said to be overcrowded.

**Personal.**—Dr. Gideon J. Ferreira has been appointed health officer of St. Louis County; Dr. Ferreira is a graduate of the State University of Iowa College of Medicine, Iowa City, and for about five years has been health officer of the city of Aurora.——Dr. Henry A. Harris, of the department of anatomy, University College, London, is spending two months at the Mayo Clinic, Rochester.——Dr. Louis B. Wilson, Rochester, has been elected an honorary member of the Czech Medical Society of Prague.——Dr. Gustav H. Luedtke, Fairmont, has been appointed coroner of Martin County.——Dr. James M. Murdoch has been appointed superintendent of the Minnesota School for Feebleminded at Fairbault.

## MISSOURI

**Personal.**—Dr. Katherine B. Richardson, Kansas City, co-founder of the Mercy Hospital, was selected by the business and professional women's clubs of Missouri, June 10, as the most outstanding professional woman in the state; this was the thirtieth anniversary of the founding of Mercy Hospital.

**A Family of Physicians.**—Dr. A. M. Wood, Sr., settled in Shelby County to practice medicine in 1833; his son, by the same name, practiced medicine in Shelby County more than

fifty years; Dr. Adolph M. Wood, the great grandson, at the present time practicing at Shelbina, will soon complete ninety-four years which the Wood family has devoted to the practice of medicine in Shelby County.

**Testimonial Dinner.**—Members of the Boone County Medical Society recently gave a testimonial dinner to Dr. Frank G. Nifong, Columbia, president of the state medical association; Dr. Arthur R. McComas, Sturgeon, councilor, and Dr. Robert R. Robinson, Hallsville, who is moving to New Mexico. The toastmaster was Dr. Lloyd Simpson, Columbia, who required every one present to make a speech.

**Maternity Hospital Opens.**—The St. Louis Maternity Hospital opened for the reception of patients, August 15, equipped with every aid which modern medicine has developed for maternal care and research in obstetric problems. The hospital is one of the group of buildings of the Washington University Medical School, St. Louis, to which institution it is attached. There are forty private rooms and a total capacity of 105 patients. Facilities have been provided for quartering full-time research workers, who will be supported by funds from the Rockefeller Foundation.

## NEW YORK

**Society News.**—The Association of New York Central Lines Surgeons will hold its fifth annual meeting at the Hotel Statler, Buffalo, October 13-14, under the presidency of Dr. Udo J. Wile, Ann Arbor, Mich.——At the annual meeting of the Eighth District Branch of the Medical Society of the State of New York, Warsaw, October 6, Dr. Charles Ward G. Crampton, New York, will speak on health examinations from the standpoint of the general practitioner.

**Hospital Superintendents' Picnic.**—The superintendents of the hospitals of the five boroughs of New York were the guests of the Westchester County Hospital Association at a picnic and dancing party in June on the grounds of the Grasslands Hospital, Valhalla. About seventy-five persons attended, and were entertained by walks about the 600 acre hospital farm, swimming in the hospital's pool in Westchester Hall, and the playing of outdoor games. Such a meeting is an annual event.

**State Orthopedic Service Reorganized.**—Increased demands on the field orthopedic service of the state health department has necessitated some reorganization. Three orthopedic surgeons, Drs. Francis J. Carr, Buffalo, Robert M. Cleary, Buffalo, and Charles M. Allaben, Binghamton, have been appointed district orthopedists on part-time basis, and a fourth will be appointed. They will conduct field clinics similar to the clinics formerly conducted by the state orthopedic surgeon for the examination of crippled children. Physicians referring patients to the clinics will receive reports of them as heretofore.

**Patients in State Hospitals.**—In the thirty-eighth annual report of the state hospital commission, which has just been received, it appears there were 44,419 patients in the civil state hospitals for mental disease; 1,576 in the hospitals for the criminal insane, and 1,519 patients in private institutions who had been committed, making a grand total of 47,514 patients. The admissions for the year totaled 11,854, including transfers. There were 7,295 first admissions to the civil hospitals, 133 to the hospitals for the criminal insane, and 374 to the private licensed institutions. During the year, 4,526 patients were discharged from the civil hospitals; seventy-seven from the hospitals for the criminal insane, and 340 from the private institutions. There were 4,107 deaths in the civil hospitals; fifty-six in the hospitals for the criminal insane, and eighty-one in the private institutions, a total of 4,244. Of the number discharged from the civil state hospitals, 1,771 were discharged as recovered; 942 as much improved; 1,017 as improved; 718 as unimproved, and seventy-eight as not insane. The total number discharged as benefited by treatment was 3,808. The recovery rate, based on first admission, was 24.3 per cent, and based on the total number under treatment, 3.3 per cent. The rate of patients discharged as benefited by treatment based on first admissions was 52.2 per cent, and based on the total number under treatment, 7.2 per cent; of the 7,295 first admissions during the fiscal year ending June 30, 1927, 57 per cent were natives of this country; 19.6 per cent were citizens by naturalization, and 21 per cent were aliens.

### New York City

**Personal.**—About fifty friends of Dr. David Felberbaum gave a dinner in his honor, August 11, at the Hotel Brevoort; Dr. Felberbaum sailed, August 26, for an extended trip abroad.——Dr. Oswald S. Lowsley will address the Medical Association of the Isthmian Canal Zone, September 15, on "Modern Methods of Diagnosis and Treatment in Urologic Surgery," and will make an extended tour through the West Indies.

**Medical Lectures at New School for Social Research.**—A course on "Recent Progress in Medicine and Surgery" will be introduced at the New School for Social Research, 465 West Sixty-Third Street, September 29. The opening lecture will be by Dr. Simon Flexner, director, Rockefeller Institute for Medical Research; other lecturers will be Drs. Walter B. Cannon, professor of physiology, Harvard University Medical School, Boston; Dr. Lewellys Barker, emeritus professor of medicine, Johns Hopkins University Medical School, Baltimore; Dr. Francis Carter Wood, Columbia University College of Physicians and Surgeons; Dr. Charles V. Chapin, Providence, president of the American Public Health Association, and Louis I. Dublin, Ph.D., of the Metropolitan Life Insurance Company. The lectures are intended for laymen, most of whom will be college graduates and some of them physicians and nurses. The subject will include endocrine glands, problems of nutrition, tissue culture and physiology, vital statistics, immunity, epidemiology, cancer, heart disease, nervous diseases and others. This school, established eight years ago, has no entrance requirements and no examinations or credits. The majority of the students are business and professional women; among 1,864 students last year, 653 were men; there were thirty-nine physicians. Information regarding the courses which cover many other fields, will be given on request to the secretary.

## NORTH CAROLINA

**Ninth District Meeting.**—The Ninth District Medical Society will meet at Lenoir, Thursday, September 29, as the guest of the Caldwell County Medical Society and the citizens of the county. A clinic on skin diseases in children has been arranged; many interesting cases will be presented; Dr. Joseph A. Elliott, Jr., Charlotte, will read a paper on "Skin Diseases in Children" at the afternoon session; among others, Dr. Frank H. Richardson, Brooklyn, will speak on "Breast Feeding"; Dr. Wingate M. Johnson, Winston-Salem, "Fatigue in Children"; Dr. James W. Vernon, Morganton, "Mental Diseases of Children"; Dr. Chalmers M. Van Poole, Salisbury, "Proper Care of the Heart"; Dr. Walter F. Cole, Greensboro, "Simplification of Our Methods of Treating Fracture of the Femur," and Dr. Verling K. Hart, Statesville, "Recognition and Management of Acute Otitis Media and Its Complications"; Dr. Paul P. McCain, Sanatorium, "Tuberculosis in Children," and Dr. Oscar L. Miller, Gastonia, "Early Postural Defects in Children." At the dinner, talks will be made by Drs. Minor R. Adams, Statesville, John T. Burrus, High Point, Charles O'H. Laughinghouse, Raleigh, and Rev. Thomas L. Trott, Statesville. Parking space has been provided and officers will guard the cars. Members and others are requested to come early in view of the length of the program.

## NORTH DAKOTA

**Personal.**—Dr. Louis H. Braafladt, until recently a medical missionary in China, took charge of the pathologic and roentgen-ray laboratory at Trinity Hospital, Minot, September 1.——Dr. Edward C. Haagensen, health officer, Grand Forks, was recently elected president of the North Dakota Health Officers' Association.

## OHIO

**Personal.**—Dr. Robert D. Maddox, Washington, D. C., has been elected superintendent of the city hospital of Springfield at a salary of $6,000 a year, it is reported.

**Clinic for Crippled Children.**—Dr. Theodore A. Willis, Cleveland, conducted a clinic for crippled children at the Elyria Memorial Hospital, August 9, assisted by Drs. N. C. Riddle, Zina Pitcher and George Gill. About sixty-five children from many neighboring cities were collected by Rotarians, Kiwanians and county health nurses and brought to the clinic. A committee from the Elyria Rotary Club was in attendance.

**Infantile Paralysis Still Spreading.**—There had been 195 cases of infantile paralysis reported to the Ohio State Department of Health during August up to noon of the twenty-ninth with twenty-three deaths, and during July, twenty-nine cases with seven deaths. One hundred and seventy cases had been placed under quarantine since August 7. The infection, the state health department says, is slowly moving from

the northeastern part of the state toward the southwest. A poliomyelitis antitoxin may be obtained in limited quantities in certain places in the state but apparently not unless local health commissioners pay for it and are prepared to stand a loss. Dr. John E. Monger, the state health officer, expresses the attitude of the department, in part, as follows: where the disease exists, the health commissioner will be amply repaid for excess of caution rather than by too little caution. There are at least 1,500,000 children in Ohio in the specifically susceptible ages. The increase in the number of cases is considered no greater than might be expected under existing conditions.

## OKLAHOMA

**Personal.**—Dr. Joseph E. Walker, Shawnee, has been appointed county superintendent of health.——Dr. Dock Long, Duncan, has been appointed health officer for Stephens County.——Dr. Carl Puckett, Oklahoma City, formerly commissioner of health, has been appointed managing director of the Oklahoma Public Health Association.——Dr. Frank L. Watson, McAlester, has been appointed physician to the Oklahoma State Penitentiary to succeed Dr. John W. Echols, McAlester, resigned.

## PENNSYLVANIA

**Personal.**—Dr. Edward B. Heckel, Chairman of the Board of Trustees of the American Medical Association, has been elected president of the Pittsburgh Ophthalmological Society for the ensuing year.——Dr. William W. Blair has been elected president of the Pittsburgh Slit-Lamp Society.——Dr. William A. Hausman, Jr., has been appointed in charge of the state cancer clinic to be opened at the Sacred Heart Hospital, Allentown, September 12; the clinic will be open to cancer patients every Monday afternoon.

**Old Hospital to be Enlarged.**—St. Francis Hospital, Pittsburgh, will construct a $1,500,000 addition which will increase its capacity to 850 beds. The hospital has been crowded for years, having now about 700 patients, although its normal capacity is only 600. The institution last year treated 32,785 patients in hospital and dispensary, and 77 per cent of them were cared for free of charge, which created a deficit of about $200,000. St. Francis Hospital, during sixty-one years of service, has never asked the public for funds. Now, however, in view of the urgent need for beds, an appeal will be made to the public to help build the addition.

### Philadelphia

**Society News.**—Dr. Hugh H. Young, clinical professor of urology, Johns Hopkins University Medical School, Baltimore, will address the Philadelphia County Medical Society, September 28, on "Sterilization of Local and General Infections by Intravenous Injection of Mercurochrome."

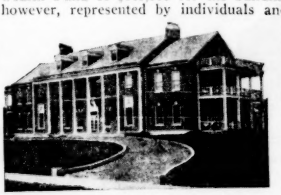
**Personal.**—William A. Stecher, director, department of physical education in the Philadelphia public schools, and for many years active in the promotion of school health activities, retired, September 1, and will establish a home in the Hawaiian Islands.——Major Edward H. Bedrossian, Medical Reserve Corps, has been ordered to active duty, November 6 at Brooks Field, San Antonio, Texas, for a course of instruction in aviation medicine and will be relieved from active duty, December 20.

## TENNESSEE

**Dr. Young Honored.**—At the regular meeting of the White County Medical Society, Bon Air, Dr. William B. Young was elected an honorary member for life. Dr. Young is said to have organized the White County Medical Society as well as the Upper Cumberland Medical Society and was the first secretary of both societies, formerly vice president of the former and president of the latter society, and was for many years an active practitioner of medicine. Now, however, Dr. Young has retired from practice and is engaged in business. Dr. Erbie B. Clark was host to the society at this meeting and Dr. William M. Johnson, the president, presided. Among the speakers was Dr. Edgar M. McPeak, a graduate of Vanderbilt Medical College, whose subject was "Treatment of Pernicious Anemia."

**Personal.**—Dr. William D. Haggard, Nashville, addressed the Lions Club of Nashville, August 11, on "How to Prevent Contagious Diseases."——Dr. Harry S. Smythe, Mountain City, has been appointed by the governor to the state board of medical examiners to succeed Dr. John W. Ogle, Sevierville.——Dr. Frank L. Roberts, Trenton, director of the Gibson County Health Unit, has been appointed associate director of all local health organizations in West Tennessee, with headquarters at Trenton; Dr. James A. Crabtree, Chattanooga, will also move to Trenton as an associate in this work. It is planned to extend the movement of health units in this region. Dr. Roberts will also continue his work in Gibson County.——Dr. and Mrs. Guy R. Jones, Orlinda, were hosts to the Robertson County Medical Society, August 16, at a barbecue, following which Dr. Thomas G. Follard, Nashville, read a paper on "Traumatic Appendicitis," and Dr. Carl S. McMurray, Nashville, on "Lymphatic Drainage of the Female Pelvis." At the September 20 meeting of the society, Dr. William B. Dye, Springfield, will be host at a squirrel stew.

**Another Rural Hospital—First in Rutherford County.**—Rutherford County, comprising 580 square miles, was without a hospital of any kind until May 2, when the Rutherford Hospital was formally opened in the presence of about 500 persons at a ceremony presided over by the chairman of the administrative board, H. C. Christy. Dr. William D. Haggard, Nashville, professor of clinical surgery, Vanderbilt University School of Medicine, gave an address. The Rutherford Hospital was made possible by a gift from the Commonwealth Fund of $165,000 for the building. The community, however, represented by individuals and various organizations, donated equipment and furnished fourteen memorial rooms. The hospital has a capacity of about fifty patients; it is fireproof, has five operating rooms, a completely equipped laboratory, a dental clinic, an assembly room, eleven private rooms for patients and wards of from two to six beds for white and colored patients. The board of directors comprises fifteen men and women, some of whom have devoted years of service to the community in various ways. In appreciation of the service rendered by the chairman of the administrative board, Mr. Christy, he was presented at the opening exercises with a silver service. The Rutherford Hospital is another unit provided through the plan of the Commonwealth Fund to establish each year two rural hospitals in communities which have been carefully studied with regard to their hospital needs.



## TEXAS

**Personal.**—Major Edward F. Cooke, Houston, was ordered to active duty, September 1, at Carlisle Barracks, Pa., for a course of instruction to continue until about October 15.——Dr. George E. Bethel has been appointed director of the medical service of the University of Texas at Austin.

**Dr. Carrick Appointed Health Officer of Dallas.**—The city commission of Dallas has confirmed the appointment of Dr. Manton M. Carrick as city health director, effective, September 1. Dr. Carrick is a former state health officer and president of the state board of health and assistant superintendent of the epileptic colony at Abilene. He served as a major in the army during the World War.

**Hospital News.**—Dr. Murray L. Chapman has resigned from the staff of the Kings Daughters' Hospital Clinic at Temple, after many years' service, on account of ill health, and has been succeeded by Dr. Eugene Vernon Powell.——Mrs. W. I. Cook, Albany, has given $1,150,000 for a hospital at Fort Worth which will be a memorial to her husband and daughter. The contracts for the building have been let. The hospital will cost $650,000, and the remainder of the gift will be for endowment. A feature of the work of the hospital will be to care for women and girls who are ill and short of funds.

## WEST VIRGINIA

**Personal.**—Dr. Frank C. Makepeace, Spencer, has assumed charge of the Marshall County Health Department, Moundsville, succeeding Dr. David Berman, resigned.

**Quarantine Placed Against Ohio for Infantile Paralysis.**—Health officials of West Virginia recently proclaimed a quarantine against children under 15 years of age from the state of Ohio in an effort to prevent the spread of infantile paralysis. The U. S. Public Health Service sent Dr. George W. McCoy, Washington, D. C., director of the Hygienic Laboratory, to Wheeling to investigate the spread of the disease in both states after conferring with the health officials.

## WISCONSIN

**University News.**—In connection with the graduation in June of the first class to complete a four year course in medicine at the University of Wisconsin, there was a reunion of students who had taken only their first two years' work; Dr. Dean Lewis of Johns Hopkins University, Baltimore, gave the address. An exhibit case for historical medical material was presented to the school.

**Society News.**—The Eleventh District Medical Society held its annual meeting in Superior, August 13, which was addressed by Drs. Erwin R. Schmidt, professor of surgery, University of Wisconsin Medical School, Madison; Albert M. Snell, Mayo Clinic, Rochester, Minn.; R. I. Rizer, Minneapolis, and Mr. J. G. Crownhart, Milwaukee, executive secretary of the state medical society. Dr. Carl O. Hertzman, Ashland, was elected president for the ensuing year, and the next annual meeting will be at Ashland.

**Personal.**—Joseph Jastrow, Ph.D., has retired as professor of psychology at the University of Wisconsin, Madison, and has been made emeritus professor.——Dr. Frank L. Weston has resigned from the student advisory staff of the Wisconsin General Hospital to engage in private practice.——Dr. Phillips F. Greene, Madison, until recently associated with the Yale-in-China Medical School and Hospital, has accepted the appointment of associate professor of surgery at the University of Wisconsin Medical School.

## GENERAL

**Manufacture of Half-Strength Iodine Forbidden.**—The U. S. Treasury Department has just issued an order forbidding the manufacture of half-strength iodine containing a considerable strength of alcohol. While manufacturers will not be permitted to use this formula, the order does not affect the manufacture of full-strength iodine. It has been discovered by the department chemists that alcohol was being extracted from the weaker mixture for beverage purposes.

**Meeting of School Medical Inspectors.**—All school physicians are invited to attend a meeting of school medical inspectors of the United States and Canada at the Sinton Hotel, Cincinnati, October 17. Many subjects, it is said, will be discussed in a way helpful to school inspectors and at the informal dinner in the evening several prominent school physicians will speak. Those planning to attend should write Dr. William A. Howe, state education department, Albany, N. Y.

**American College of Surgeons.**—The American College of Surgeons will hold its Clinical Congress in Detroit, October 3-7. The Hospital Standardization Conference will include a discussion of hospital and nursing problems and hospital demonstrations. On Tuesday evening the program will take the form of a celebration of the Lister Centennial. On Thursday evening there will be a large community health meeting in the masonic temple, and on Friday evening the annual convocation of the college. The departments of hospital activities, of literary research, and of clinical research of the college will present exhibits. Among the foreign guests of the college will be Sir John Bland Sutton, England; J. M. Munro Kerr, Scotland; Gordon Craig, Australia; Gustaf E. Essen-Moller, Sweden, and S. A. Gammeltoft, Denmark. The retiring president is Dr. Walter W. Chipman, Montreal, and the president to be inaugurated is Dr. George David Stewart, New York. The Lister oration will be delivered by Dr. William W. Keen, Philadelphia.

**Amount of Pellagra Abnormally High.**—Investigations covering Tennessee, Arkansas, Mississippi and Louisiana by Dr. Joseph Goldberger and Edgar Sydenstricker, under the auspices of the U. S. Public Health Service, indicate an increase in pellagra due to causes related to the recent floods. From the survey made, it was estimated that pellagra, during 1927, will cause from 2,300 to an estimated total of about 2,500 deaths with from 45,000 to 50,000 cases, as compared with 1,020 deaths and 20,000 cases reported in 1924. In the course of the survey, these investigators visited Dyersburg and vicinity, Tenn.; Little Rock, Pine Bluff, Marked Tree and vicinities, Ark.; Jackson, Greenwood and Indianola, Miss.; and New Orleans, Baton Rouge, Alexandria and Monroe in Louisiana. Conferences were held with state and local health officials, some of whom do not seem to have definite information concerning the pellagra situation. The information obtained was therefore of a very general character with regard to some communities, and in at least one community, very definite. The authorities are satisfied that in the places visited the incidence of pellagra is abnormally high.

**Report of Commission for the Hard-of-Hearing.**—The commission on education of the American Federation of Organizations for the Hard-of-Hearing has reported the results of an investigation conducted in the public schools of the country. As it was found impracticable to make a careful otologic examination of all the hard-of-hearing children, one large school was selected, and intensive studies and careful audigraphs of all cases of deficient hearing were made. It is said that each school should have a quiet room for the examination of the eye, ear, nose and throat, and that the newer public schools are provided with such a room. The cooperation of otologists in a community is considered essential to alleviate and prevent deafness among school children. The commission found in one school that among 349 retarded hard-of-hearing children, 211 repeated a grade 441 times at a total cost of $26,460, and among 136 other hard-of-hearing children, eighty-eight repeated 172 times, costing this school $10,800. There is a waste of money in educating the hard-of-hearing children by the ordinary methods. About fifty teachers are engaged in public school work for hard-of-hearing in the entire country. In some cities, a specially trained teacher goes from school to school instructing small groups several times a week and for a period ranging from a half to three-fourths of an hour. This has brought good results. The child continues with his regular class, and his teacher is advised of his needs. Schools for the hard-of-hearing have been opened in Germany, Austria and Holland, and special classes for them in parts of Switzerland. In the United States, classes are offered for teachers of the hard-of-hearing, outside private schools of speech reading, at the Boston Teachers' College, the University of Rochester, Johns Hopkins University, the University of California, and the Michigan State Normal College, and under the auspices of the Brooklyn Teachers Association.

**Association of American Medical Colleges Meeting in Montreal.**—The thirty-eighth annual meeting of the Association of American Medical Colleges will be in Montreal, Canada, October 24-26, with headquarters at the Mount Royal Hotel, all meetings being held in the anatomy building of McGill University. The afternoons and evenings have been left open to permit visits to the historic places in the community and for entertainment. Paul Bartsch, Ph.D., chief of the division of the molluscs of the Smithsonian Institution, Washington, D. C., will exhibit an "underseas" film either Monday or Tuesday evening, and delegates have been invited to visit the factory of the Waterman Pen Company, where the souvenir will be one of the well known fountain pens. The program of the sessions will be as follows: Dr. Walter W. Chipman, McGill University Faculty of Medicine, Montreal, will read a paper on "Teaching of Obstetrics"; E. A. Bott, University of Toronto Faculty of Medicine, "Teaching of Psychology in the Medical Course"; Dr. John C. B. Grant, professor of anatomy, University of Manitoba Faculty of Medicine, "Teaching Anatomy"; Dr. William D. Cutter, New York, "Some Aspects of a Graduate School of Medicine"; Dr. G. Canby Robinson, dean and professor of medicine, Vanderbilt University School of Medicine, Nashville, Tenn., "The Administrative Personnel of a Medical School"; Dr. Herman G. Weiskotten, Syracuse University College of Medicine, "Further Report on Specialization in Medicine." Dr. Charles R. Bardeen, University of Wisconsin Medical School, Madison, Dr. Hugh Cabot, University of Michigan Medical School, Ann Arbor, and Dr. Lionel S. Schmitt, University of California Medical School, San Francisco, will discuss "Extramural Clinical Teaching"; Dr. John C. Meakins, McGill University Faculty of Medicine, Montreal, "Teaching of Medicine"; Dr. Duncan A. L. Graham, University of Toronto Faculty of Medicine, "Teaching of Physical Diagnosis"; Dr. Hilding Berglund, University of Minnesota Medical School, Minneapolis, "What to Teach and What to Skip"; Dr. Charles P. Emerson, Indiana University School of Medicine, Indianapolis, "Teaching of Internal Medicine Along Phylogenetic Lines"; Dr. Clyde Brooks, University of Alabama School of Medicine, Tuscaloosa, "Coordination and Strengthening Premedical Training as a Means of Improving a Candidate for Medicine"; Dr. Burton D. Myers, Indiana University School of Medicine, "Further Report on Applicants for Matriculation to Medical Schools"; Dr. Charles C. Bass, Tulane University of Louisiana School of Medicine, "Demands on the Medical Practitioner in the South During a Period of One Year"; Dr. Hermann von W. Schulte, Creighton University School of Medicine, Omaha, "Medical Education as It Strikes an Anatomist"; Dr. J. Jay Keegan, University of Nebraska College of Medicine, Omaha, "The Problem of Junior Medical Teaching"; Dr. Eben J. Carey, Marquette University

School of Medicine, "Place of Living Anatomy in Medical Schools"; Dr. James M. H. Rowland, University of Maryland School of Medicine, Baltimore, "An Experiment in the Teaching of the History of Medicine"; Lawrence H. Baker, Ph.D., Johns Hopkins University School of Medicine, Baltimore, "An Experiment with the Curriculum"; Dr. Martha Tracy, Woman's Medical College of Philadelphia, "Further Report on Women in Medicine"; Dr. Charles S. Butler, commandant, Naval Medical School, "Coordination of Medical Problems: Medical Education; Public Health; Hospital."

### PHILIPPINE ISLANDS

**Public Health Items.**—Dr. Manuel Llora, after twenty-two years' service mostly as health officer of the Philippine Health Department, was retired last October.——In the campaign against malaria, public lectures are being given every week by the presidents of sanitary divisions, and the sale of quinine to school children by the teachers is progressing.——In the examination of 635 school children by the president of the first sanitary division last September in Mindoro, the most common diseases found were dental caries, tonsillitis, and diseases of the eyes and skin, all of which, except dental caries, were treated at the municipal dispensaries.——The October, 1926, Bulletin of the Philippine Health Service reports that antismallpox vaccination in the provinces since January, 1926, amounted to 2,018,859, of which number about 475,000 persons had never been previously vaccinated; also that the vaccinations with mixed typhoid and cholera vaccine during the same period amounted to 545,157. The number of lepers collected from the provinces on the leper collection trip noted in this bulletin amounted to eighty-one.

### FOREIGN

**French Congress of Medicine.**—As noted in THE JOURNAL, July 16, p. 220, the nineteenth session of the French Congress of Medicine will be held in Paris, October 11-14. Prof. P. Teissier will serve as chairman. The program will deal with the semiology of medical septicemias; the physiopathology of edemas, and the comparative value of medical treatment and splenectomy. Among the speakers will be Gastinel, Reilly, Pasteur Vallery-Radot, Fiessinger and Brodin, Paris; Arloin and Dufour, Lyon; Govaerts, Brussels; de Lavergne, Nancy; Maurice and Aubel, Bordeaux; Nanta, Algiers, and Jean Tapie, Toulouse. There will be an exhibition of pharmaceutic products, hygienic and radiologic apparatus, laboratory instruments, and medical journals and books. A reduction in railroad fares will be granted to members, and the steamship lines are considering similar special rates. A program of festivities, receptions and excursions has been arranged. The registration fee is 50 francs for members of attending physicians' families and for medical students. Application for membership should be made to M. Pierre Masson, Editor, 120 B-rd St. Germain, Paris.

**Smoke Abatement in England.**—A new smoke abatement act because effective in England, July 1, which, the *Lancet* says, is not a thorough reform but tightens up the law in several ways. Smoke emitted from private dwelling houses apparently is exempt from the law, the ministry pointing out that private builders nowadays install methods that tend to reduce the smoke nuisance. All seagoing ships are exempt under the new law also. Two important provisions of the new law are the power to prescribe standards with regard to smoke emission, and the power to make by-laws, requiring inspection of heating arrangements in new buildings and in cooking. The ministry of health intimates that the industrial districts should now make by-laws as to standards. The annual report of the London County Council on atmospheric pollution shows how the visibility in London and the actinic power of the light vary by season. During the summer months, the visibility was from 5 to 6 miles; during the spring, from 2 to 5 miles; during the autumn, from 2 to 6 miles, and during the winter, from 0 to 9 miles. One set of observations made in accordance with a method devised to measure the actinic power of the light by the number of seconds required to turn a standard paper to a given tint showed that the light took 17 seconds in summer; 36 seconds during the spring; 38 seconds during the autumn, and 63 seconds during the winter. The average area of visibility in London at noon, the *Lancet* continues, is about 50 times greater in summer than in winter, and 5 times greater in summer than in the spring and autumn; the actinic power of the light is 3 times greater in the summer than in the winter and twice as great in the summer as in the spring and autumn. The amount of dust and tar in the air is 3 times greater in the winter than in the summer, and nearly twice as much as in the spring and autumn as it is in the summer. The value of the new smoke law will depend, it is said, on its local administration, and not much can be obtained under the act unless the authorities and the occupiers of the premises cooperate in the spirit in which the law is intended.

## *Government Services*

### Navy Personals

The bureau of medicine and surgery has recommended to the navy department the following transfers: Comdr. John B. Pollard from the Asiatic station to Norfolk, Va.; Lieut. Comdr. Albin L. Lindall from Great Lakes, Ill., to the U. S. S. *Memphis;* Lieut. Comdr. Henry McDonald from the naval station, Guam, to Puget Sound; Lieut. Comdr. George W. Taylor from Denver, Colo., to the U. S. S. *Whitney;* Lieut. Comdr. Harry W. B. Turner from the U. S. S. *Whitney* to Birmingham, Ala.; Comdr. Herbert L. Kelley from Virgin Islands to San Diego, Calif.——The Navy Selection Board met in July to select five commanders in the medical corps for the rank of captain. There are no lieutenant commanders due for promotion to commander for this year.——Capt. Perceval S. Rossiter has been transferred from the naval hospital, Chelsea, Mass., to the naval hospital, New York; Capt. Frank E. Sellers from the U. S. S. *Tennessee* to the naval hospital, Chelsea; Comdr. Claude W. Carr from U. S. S. *Relief* to the naval hospital, Puget Sound, Wash.; Lieut. Comdr. Joseph H. Durrett from New Orleans to treatment at the naval hospital at Washington, D. C.; Lieut. Comdr. Hillard L. Weer, from Hampton Roads to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.——About seventeen medical officers will be examined for promotion to lieutenant commander at various naval hospitals about September 12, and a number of lieutenants, junior grade, will be examined for promotion the last week in September. The following medical officers have been directed to report for courses of instruction at the naval medical school, Washington, D. C., September 2: General course: Lieut. Comdr. William D. Small and Lieuts. Henry M. Weber, John R. Smith, William E. Pinner, Francis P. Field, Ross U. Whiteside, Thomas H. Taber, Harvey E. Robins and H. A. N. Buckshaw. Laboratory course: Lieut. Paul F. Dickens. Special course: Lieut. Comdr. Edwin Peterson. Aviation medicine course: Lieuts. Otto W. Grisier, Albert Ickstadt, Jr., Clyde M. Longstreth and Joseph W. Kimbrough.

### Veterans' Bureau Personals

The August *U. S. Veterans' Bureau Medical Bulletin* notes, among others, the following changes in personnel: Dr. Charles S. Adams, resigned at North Little Rock, Ark.; Dr. Parker G. Borden, resigned at Palo Alto, Calif.; Dr. Robert W. Brace, transferred from Oteen, N. C., to Fort Snelling, Minn.; Dr. George D. Brand, resigned at St. Paul; Dr. Rhodric W. Browne, transferred from Fort Snelling, Minn. (St. Paul), to Fort Bayard, N. M.; Dr. Samuel K. Carson, resigned at Gulfport, Miss.; Dr. Fred H. Clark, transferred from advisory group on appeals, central office, to Aspinwall, Pa.; Dr. Richard E. Crane, appointed part-time pathologist at Sheridan, Wyo.; Dr. Henry C. Drew, transferred from West Haven, Conn., to Chicago regional office; Dr. Charles E. Fitzsimmons, reinstated at Rutland Heights, Mass.; Dr. David M. Gardner, transferred from Algiers, La., to Gulfport, Miss.; Dr. Roy A. Gunter, transferred from Fort Bayard, N. M., to Walla Walla, Wash.; Dr. Albert J. Hoskins, transferred from Fort Bayard, N. M., to Phoenix, Ariz., as regional medical officer; Dr. John W. Kellam, resigned at Livermore, Calif.; Dr. Leo T. Kewer, transferred from Boston regional office to awards division, adjudication service, central office; Dr. Percival G. Lasche, transferred from Perry Point, Md., to Palo Alto, Calif., as M. O. C.; Dr. Ottis Like, appointed at Palo Alto, Calif., as full-time specialist; Dr. Hugo Mella, transferred from Bronx, N. Y., to medical service, central office; Dr. Archie E. Ray, transferred from West Roxbury, Mass., to North Little Rock, Ark.; Dr. Frank J. Ronayne, resigned at Edward Hines Jr. Hospital, Maywood, Ill.; Dr. Frank R. Sedgley, transferred from St. Paul to Fort Snelling, Minn.; Dr. Franklin M. Seibert, transferred from St. Paul to Fort Snelling, Minn.; Dr. George M. Shewalter, resigned at Aspinwall, Pa.; Dr. William M. Van Patten, resigned at Tacoma, Wash.; Dr. Walter R. Wynne, transferred from Rutland Heights, Mass., to Legion, Texas.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Aug. 20, 1927.

### "The Odoscope"

The "oscilloclast" of Abrams and the "improvement" on it claimed for a new instrument by a British physician, described some time ago, have evidently been outdone. Here is what a newspaper tells us: "An amazing apparatus which automatically signals whether one is in good health or not has reached London and is being used with remarkable success by a West End specialist. Named the Odoscope, it is the invention of a German scientist, and certain circumstances enable ordinary diagnosis to be entirely dispensed with. A pressure of the finger on a tiny hole and the instrument instantly records with unerring accuracy the state of a patient's health." A *Sunday Chronicle* representative who tested it "found that he was deficient in three important salts. Not only that, but the apparatus actually traced out in alphabetic character the dash or sign of the salt in question. The miracle machine is the result of a long series of experiments based upon the discovery that in the sun, air and earth and in the protoplasmic organization of man the creation and death of all life is dependent upon sixteen different rays." So writes the *Sunday Chronicle*, and there are evidently people to believe such stuff.

### Brown Versus White Bread

The campaign of the New Health Society in favor of brown bread, led by its president, Sir Arbuthnot Lane, who described white bread as "the greatest curse of our civilization," has been mentioned in previous letters. Now comes a counter-blast by Sir Thomas Horder and others in the lay as well as the medical press. In a joint letter to the *Lancet*, he and V. H. Mottram, professor of physiology at London University, H. E. Roaf, F.R.S., professor of physiology at the London Hospital Medical School, and T. B. Wood, F.R.S., professor of agriculture at Cambridge University, say: "While we readily admit that vitamin B, which is essential to health, is present in whole-meal flour and practically absent from white flour, we do not subscribe to the statement that it is not contained in white bread. The fact is that any lack of vitamin B in white flour is remedied when the flour is made into bread by the addition of yeast, which contains plenty of it. The case for whole-meal bread has been overstated. The allegation that white bread is responsible for certain grave illnesses is not supported by scientific facts. Although whole-meal bread is a good article of diet for many people, white bread of good quality is also a wholesome and nutritious food. There are no good reasons for thinking that the substitution of whole-meal bread for white bread in the national diet would make for material improvement in the national health and physique."

To this R. H. A. Plimmer, professor of physiology at St. Thomas's Hospital Medical School, says in the *Lancet* that not enough yeast is used to compensate for the loss of vitamin B removed from the grain in milling. Ten per cent of bakers' yeast is needed to make good the loss, while bread, as usually baked, contains from 1 to 2 per cent. As much white flour is consumed in the form of cakes, pastry and puddings, in which there is no yeast, as is consumed in the form of bread. The argument of Horder that "it is of very minor importance" as to whether we use whole-meal bread or not because "other common foods—namely, eggs, peas, beans, lentils and nuts—are very rich in this same vitamin" is fallacious. The quantity of vitamin B in these foods and the quantity of these foods actually consumed is disregarded by Horder and others. If the quantities of these foods which are eaten are actually measured, it will be found that we do not eat enough of them to compensate for the absence of vitamin B from white flour, sugar, chocolate, fat and meat. Reviewing the average daily consumption of all the foods supplying vitamin B in the ordinary mixed diet, the total is not sufficient to balance the white flour, meat, sugar and other foods devoid of vitamin B. The easiest and cheapest way to insure enough is to use nothing but whole-meal flour in all bread, cakes and puddings. Absence of vitamin B leads to beriberi, which is seldom or never seen in this country. McCarrison has pointed out that the early stages in the disease are digestive and heart troubles. The symptoms found in animals and birds on too little vitamin B were dilated heart, intestinal stasis and swollen appendixes. On the shortage of vitamin B these symptoms are chronic instead of being the early stages of beriberi. They are the common, everyday troubles from which many people suffer, and their cause is most probably from a shortage—i. e., too little—vitamin B. This is the crux of the food question. There is no doubt that the daily food contains too little vitamin B. In many cases there appears to be too little vitamin A and D as evidenced by rickets.

Sir William Arbuthnot Lane says that poor children depend largely on bread and margarine and jam (mostly made of syrup with very little food in it), and it is essential to them to have the whole meal of flour. Most decayed teeth and rickets are due to this diet. It is absurd to waste money on dentists and dental clinics and on cures for rickets caused by bad teeth due to a poor diet. For well-to-do people who have access to a variety of good food it doesn't matter whether they eat brown bread or white.

This spectacle of eminent physicians and physiologists unable to agree on such an apparently simple question as to whether people should eat brown or white bread is not edifying for the public. They must conclude that medicine and science are far apart, "not on speaking terms" wrote a brilliant American journalist, the late Harold Frederick, when residing in England some years ago.

### Insects to Fight Pests in New Zealand

Certain plants and animals introduced into New Zealand from Europe have flourished so much in their new environment as to become pests. Deer have thriven far more than in their native lands, so that they are now accounted foes. Rabbits, gorse, blackberry, some birds and many insects have become lusty and predatory to a degree unknown when introduced. New agents to fight these foes are being sought, but unexpected difficulties have been encountered. Stoats and weasels, brought to destroy rabbits, turned their attention to the native birds and so reduced them as to enable timber-destroying insect life to get the upper hand. The counter-agents now sought are chiefly in the insect world, and great care is given to a study of their habits under controlled conditions before releasing them to a freedom in which they may develop new ways of life. Work is being done by the new government department of scientific research, which served as a coordinating center for public and private study. The Cawthron Institute, founded by private benefactions, has been specializing in entomologic research, and already its director, Professor Tillyard, has reported encouraging progress. *Aphelinus mali* has been imported to fight the woolly aphis, and has fully justified its trial. Many years ago some settler brought a blackberry plant to New Zealand. It grew in such luxuriance as to become a pest. All ordinary means of eradication failed. Therefore, science has called to its aid *Coroebus rubi*, an insect which has a record for discriminating between blackberry and raspberry. The young larvae of this

insect work down the root-stocks of blackberry plants and then up again. One will destroy a young plant. The first consignment of insects is now under observation at the institute. None have yet been released for field work. Other experiments are being made with foes of ragwort, gorse and foxglove. Fight is being waged against the earwig, now a pest to Southern fruit growers. Two natural enemies have been imported—*Racodindure antiqua* and *Dignochaepa sentpennis*. These are parasitic flies which have proved of value in Europe. The former lays a diminutive egg on the earwig's feeding ground. The earwig eats the egg, which hatches out a ravenous larva which eats its host. The second parasite produces a larva which bores into the shell of the earwig and then begins to eat. But in New Zealand the earwigs appeared to develop a new instinct for self-preservation. They left the death-laden eggs alone and avoided the embraces of the devouring larvae. It is possible that the parasite may have more success if its entry into the world is timed to coincide with the period when the earwig's shell is softer.

### Sanitation in the Port of London

Dr. W. M. Willoughby, health officer of the port of London, in his annual report states that 936 vessels were examined by the boarding staff as coming under suspicion by reason of the ports visited during the voyage or because of declared illness on board. In these and other vessels 787 cases of illness were inquired into and sixty-three removed to hospitals. No case of plague or cholera reached London. An arrangement for carrying on a closer sanitary watch on ships was made operative toward the end of the year. The number of rats examined from the dock areas was 2,106. In no case was plague suspected or found. There was no suspicious mortality of rats, either in the docks or in any ship. One hundred and thirty-six vessels were fumigated. The work of the food inspectors had been largely increased in the control of fats which did not bear the official certificate of the country of origin. The examination of apples, fifty-three samples, showed that most of the shipments contained little arsenic. Attention now being given to the matter by exporters would result in continued improvement. Last year 15,997 vessels arrived in the port from foreign parts, and 4,229 coastwise vessels. In all, 36,825 rats were destroyed in docks and vessels, making 1,434,757 since the work of extermination began, twenty-six years ago. Unsound food weighing 4,011 tons was seized and destroyed. This included 2,664 tons of water-damaged grain.

### The Care of the Teeth

W. H. Gilmour, professor of dental surgery at Liverpool and president of the British Dental Association, in his presidential address to the association at Liverpool said that the increase of caries bore a direct ratio to the increase of the consumption of sugars. More sweets were consumed today by children and adults. Easily soluble, boiled sweets might not do much harm; sticky and tenacious sweetmeats certainly did, chocolate perhaps most of all. The habit of giving a child a chocolate before going to sleep was most harmful. The school dental service was insufficient. Owing to the numbers of children who required treatment and the comparatively few dental officers available, millions of teeth were probably lost because they were not treated at the inception of caries. Greater use of ultraviolet radiation would not only help to build up the child but might raise the resistance to dental caries both in the youth and in the adult. From the dental point of view nothing was more essential for insuring strong, healthy teeth than suitable diet for the child from birth to maturity. The most useful correctives to modern cooking were fruits and salads, and they were not so freely consumed as they ought to be. On the continent they formed the termination of almost every meal; and the more simple the dressing, the more beneficial they were. Fruit probably stimulated greater flow of saliva than any other food. He believed saliva to be Nature's cleansing fluid, and that if the foods were sufficiently fibrous they formed the mechanical agent, which by being thoroughly masticated would remove the need for any artificial cleansing.

### Housing and Health in Scotland

A survey of the work of the Scottish office during the past session of parliament was given by Sir John Gilmour, the secretary of state, in a statement in the press. The health of Scotland continues to make definite progress, which is gratifying in view of the severe industrial depression. Toward that end, no doubt, the various insurance schemes had materially contributed. In addition to the health insurance scheme, there are, for instance, more than 35,000 children in receipt of allowances under the widows' and orphans' pensions act of 1925, and school medical services are continually helping to arrest in early years illness which, if untreated, might develop into crippling ill health in adult life. Work had been carried out in cooperation with the school authorities to emphasize the tremendous improvement which could be effected in the health of growing children by an addition to their daily ration of milk. There was a shortage of milk production in Scotland. The consumption of milk per head is only half that of the United States and about one fourth that of Sweden.

## PARIS

*(From Our Regular Correspondent)*

Aug. 10, 1927.

### Social Organizations

The Association pour le devéloppement de l'assistance aux malades provides nurses to care for patients in their homes. At the recent twenty-sixth general assembly of the association, Dr. Rist, agrégé professor at the Faculté de médecine de Paris, spoke in high praise of the services rendered by these nurses. The association has its own training school and conducts a dispensary. A large number of children have been given vacation outings. The association has a prenatal consultation service and another service for venereal patients. It has created also the "Sou des Nourrissons," which follows up the development of infants. The school has a number of scholarships available, sixteen of which were established by the American Committee appointed to aid in the restoration of the liberated regions of France. Beginning in October, the association will train visiting nurses for the care of infants and tuberculous patients. This program will be furthered by short courses provided by the Association d'hygiène, in which the American Committee has likewise rendered aid. A number of city counselors of Paris have suggested that the association be given municipal aid.

### An Appeal to the Physicians Issued by the Minister of Public Health

The minister of public health, public assistance and social welfare (direction de l'assistance et de l'hygiène publique) has sent to physicians a circular letter in which he gives a survey of some work accomplished in the interest of public health: organization of instruction for girls and young married women desirous of becoming nurses; creation of the council on postgraduate work in the training schools for nurses; administrative recognition of these schools; uniform courses of study leading up to uniform examinations; creation of an examination before a state board, and issuance of a certificate of professional capacity. But he adds that instruction alone will not assure to physicians capable, well trained assistants. Future nurses should be selected from

among young women who have a good general education and a strong moral character. The hospital administrations and organizations of social hygiene are urged to select a personnel possessing a certificate of professional capacity, and then to provide the nurses with an atmosphere and environment, together with sufficient salary, in keeping with the careful selection to which they have been subjected. The same recommendations have been sent to private institutions subsidized by the communes, the departments or the central government. The minister of public health advises that these reforms be made widely known; also the kinds of positions that are open to women nurses holding government diplomas (directors and teachers in training schools for nurses, directors and assistants in hospital social services and in industrial medicosocial centers, directors of personnel or of nurses in the hospitals, clinics, sanatoriums, preventoriums, nurseries; assistants of medical specialists; colony nurses; visiting nurses in the department of social hygiene, and others). He requests that physicians try to induce suitable young women to enter the training schools for nurses, and, furthermore, to aid in a campaign to secure for the nurses better salaries and better environment.

### Donations to Universities

The Société des amis de l'université de Paris, at its last general assembly, under the chairmanship of M. Raymond Poincaré, decided to donate considerable sums to various laboratories. M. Paul Appell, honorary rector of the Académie de Paris, whose fiftieth anniversary as a scientific worker was recently celebrated, presented a gift for the purchase of books for the students' study hall. Several other gifts were made for special purposes. M. David Weil gave $4,000 to be applied to the cost of printing theses presented by candidates for the doctor's degree at the Faculté des sciences and the Faculté des lettres. This donation is important because some students are unable to complete their graduation requirements because of the high cost of printing. The funds furnished for this purpose by the Institut de France, the central government and Madame la Marquise Arconati Visconti have been exhausted. The society supports university extension courses, the purpose of which is to attract students from foreign countries and to train them in French culture. The number of such students has been somewhat higher than the previous year and has been maintained during the second semester in spite of the exodus of foreigners. There are at present 633 students enrolled, 329 of whom are from the United States. Both sexes are represented. Many of the students continue their courses and take the doctor's degree. The society seeks in a general way to aid the development of the University of Paris by means of newly created chairs of instruction, the organization of courses and lectures, grants to laboratories and libraries, and the creation of prizes, scholarships, and honor loans to students.

### The Treatment of Vitiligo

The various methods of treating vitiligo heretofore employed have been found inefficacious. Louste and Juster conceived the idea of restoring the pigment to the light-colored patches of skin by subjecting them to ultraviolet rays. They first prepare the light-colored patches by applying to them pure oil of bergamot or a 10 per cent solution of alcohol. In a patient the treated patches present a clear pink appearance, which persists until the next treatment, while the control patches that have not been treated remain light colored.

### School Hygiene

The general assembly of the Union départementale des délégations cantonales de la Seine recently discussed a number of questions of school hygiene. The school medical inspector must combat contagious diseases and, furthermore, must discover in pupils any disorders that may impair their work. In a large number of localities, a sanitary record card file is maintained, the information on which is communicated to the parents. In the larger schools the physician should have an assistant. Books should be disinfected or discarded when badly soiled. Medical inspection should include the school grounds, the equipment, the hygienic conditions surrounding the pupils, their state of health, the periods of work and rest, the nature of physical exercise, vocational guidance, and prophylaxis of contagious diseases.

### The Disinfection of Books

School books, owing to the increased cost of paper and printing, are expensive. Therefore, used books are not discarded but should be disinfected before they are given to other pupils. Such disinfection is carried out during the vacations, and is accomplished by means of the combined action of heat and formaldehyde. The method is that introduced by M. Alasseur. The disinfection equipment consists of a portable oven, in which material to be disinfected is placed (books upright and open); four lamps of a special type, and radiation coils. The oven is brought to a temperature of 60 C. and 250 cc. of a 40 per cent solution of formaldehyde is introduced.

### Horse Meat in Relation to Public Health

Twenty-five persons suffered recently from an intoxication that developed following the eating of horse meat. The meat had been examined by the veterinary service of the abattoirs of the city of Paris. An inquiry was instituted by M. Roéland before the municipal council of Paris. It was found that the horse had been brought in from the rural section and that it was in a perfect condition of health, presenting no symptom of a contagious disease, when it was admitted for slaughter. Furthermore, a child had eaten raw a piece of the flesh of the animal a week after it was slaughtered. However, the meat had been handled by various persons with unclean hands, and food poisoning is essentially "an affection due to unclean hands."

### Variation of the Intestinal Flora of the New-Born Subjected to Different Milk Diets

Mlle. Dreyfus, who discusses in her Paris thesis the variation of the intestinal flora of the new-born on different milk diets, states that the intestine of an infant who is breast fed from birth up to the fifteenth or twentieth hour is aseptic. Intestinal infection sets in then (after twenty hours), and increases up to the third day, when it undergoes a change, and, from the fourth day on, a fixed intestinal flora is established. The proportions of the various organisms are relative and vary in abnormal cases: defective diet of the child or of the wetnurse, sickness. In bottle-fed infants, also, the intestinal flora is established about the fourth day. Intestinal putrefaction is more pronounced when the casein in the milk is more abundant. The microbic species find in this protein material a favorable medium for their development. It is the difference in the composition of human milk and cow's milk that makes the latter more difficult of digestion by the infant. When the child is put on a mixed diet, the intestinal flora varies according to the relative proportions of human milk and cow's milk that the child receives. The modification in the intestinal flora of infants corresponding to their diet finds its expression also in the varying chemical composition of the feces. *Lactobacillus bifidus*, abundant in breast-fed infants, produces lactic acid, which opposes the multiplication of organisms producing putrefaction. The intestinal flora of breast-fed infants protects them against invasions of microorganisms, which are, however, abundant in children who are bottle fed and who are thus in a state of receptivity.

## BELGIUM

*(From Our Regular Correspondent)*

July 27, 1927.

### Occupational Lesions in Workers in Sugar

Dr. Watry has reported that workers in sugar are all affected, after six years, with dental lesions, frankly of occupational origin. Packers of cookies and cakes are affected to a somewhat slighter extent (85 per cent) owing to the smaller quantity of sugar dust. The matter of predisposition is of essential importance in the workmen. The best prophylaxis would be effective examination of apprentices. Sugar dust causes a gingivitis of purely mechanical origin. After the gingivitis stage, a deposit of a sugary substance, a veritable sugar syrup, constituting the membrane of caries, is formed. Caries, protected by this sugar sheath, develops in a semilunar form or resembling a three-quarters moon (a form more or less raised above the gums). He found also digestive disorders (gastralgia, loss of appetite, constipation), respiratory conditions (pharyngitis, particularly in women), and cutaneous conditions, especially of the face.

### Prophylaxis Against Accidents with Illuminating Gas

The minister of labor has appointed a committee to inquire into the best prophylactic measures and the best remedies available in asphyxia or intoxication from illuminating gas. The committee is composed of technical engineers of gas companies, medicolegal experts, and medical inspectors of labor. Dr. Glibert is chairman of the committee.

### Proposed Legislation with Regard to Occupational Diseases

Belgium has as yet no laws that afford workmen effective protection when affected with an occupational disease, although industrial accidents have been the object of legislation. Minister Wauters, however, has just introduced a bill proposing the creation of a fund for the adjudication of claims of victims of occupational disease. The bill suggests the collaboration of the state and of the employer.

### The Death of Edmond Rouffart

The death of the eminent Belgian gynecologist Edmond Rouffart is announced. Born at Liége, Nov. 20, 1855, Rouffart devoted most of his time and energy to his hospital career and to instruction in gynecology. He was the founder of the Société belge de gynécologie et d'obstétrique and served several times as its president. He had recently been chosen honorary president of the society. He published numerous articles on the treatment of uterine fibroma and cancer, appendicectomy, and abdominal drainage. He was a corporate member of the Royal Academy of Medicine of Belgium.

### The Belgian League Against Rheumatism

Reference was made in a previous letter to the creation of the Belgian league against rheumatism. Its first assembly was held coincident with the journées médicales de Bruxelles. Its program was announced, and a part of it has since been carried out. A program of clinical observation will be submitted to the medical profession with the request that it be followed in rheumatic disease. A library is being collected, and a rheumatism center has been partly organized, at the Brugman Hospital in Brussels, in the department of physical therapy. A congress on rheumatism will be held in a few months.

### The Administration of Public Health

The official bulletin of the administration of public health contains some interesting data in regard to the appropriations needed by the administration. Public health inspections and disinfections require nearly $80,000; $20,000 is allotted for the health services in the ports and at the frontiers; $20,000 is needed for the prophylaxis of contagious diseases (supplying of free serum, etc.); $40,000 is the estimated cost of the inspection of food manufacture and the trade in food products; $200,000 will be expended for improvements in the public health services, and $200,000 for the prophylaxis of tuberculosis. Child welfare work will necessitate an expenditure of $520,000 (consultation centers for nursing mothers, free milk stations, canteens for mothers and weakly children, rural colonies for weakly children, maternity hospitals sponsored by communes or groups of communes, retreats for mothers, and day and night nurseries). The prophylaxis of venereal disease and cancer will cost $80,000.

### Sanitary Organization in the Grand Duchy of Luxemburg

Dr. Praum, director of the bacteriologic laboratory, has presented to the committee of the international bureau of public hygiene a communication on sanitary organization in the grand duchy of Luxemburg. There is no faculty of medicine in Luxemburg. However, a special commission examines candidates who have studied at the universities of their choice. Candidates are free to practice medicine as soon as they pass the examinations.

With respect to sanitary administration, there are two authorities: the college of physicians and the health officers. The college of physicians supervises the sanitary service. It exerts disciplinary control over the medical profession. The college is composed of eight active members: four physicians, two pharmacists and a veterinarian, eight alternates, and five adjunct members. The members are chosen by secret ballot on presentation of the double list of candidates, by physicians, dentists, pharmacists and veterinarians.

The college of physicians may, on its own initiative, deliberate, render opinions or submit proposals to the government on all questions concerning hygiene or the art of healing. It submits annually a general report to the government. If any court or tribunal shall declare that a physician has forfeited his civic rights, the right to practice medicine shall be included therein. Such interdiction shall always be imposed in case of theft, receiving of stolen goods, fraud or illegal abortion.

There are eleven health officers. They have, by virtue of their office, the right to inspect all buildings. They may bring suit for infractions of health ordinances. In case of emergency, they may decide on immediate measures to be taken, which must be carried out at once. Municipalities may not reach a decision or adopt any health regulation without first soliciting the opinion of the health officer having jurisdiction. His opinion is required also in connection with all public undertakings, such as schools, theaters, abattoirs, plumbing installations, sewerage, markets and cemeteries.

The medical institutions comprise the bacteriologic laboratory and the national institute of hygiene, founded in 1897, which include the medical service, the veterinary service, the chemical service and the disinfection service. As to hospitals, there are only private establishments, except a large psychopathic hospital and a maternity hospital. There are two medical associations, the Société des sciences médicales and the Syndicat médical, the former having a scientific scope, and the latter serving to protect the financial interests of its members. In the field of public health, there is a law analogous to the French law pertaining to the protection of public health. Smallpox vaccination is compulsory. The grand duchy has accepted the various sanitary conventions and is affiliated with the international bureau of public health. Special arrangements have been concluded with the adjoining countries with respect to notification of cases of transmissible diseases observed in frontier regions. The system of health insurance is patterned after that of Germany. There are, furthermore, a Red Cross society and a league to combat tuberculosis.

## BERLIN

*(From Our Regular Correspondent)*

Aug. 6, 1927.

### Cancer Research

Not only immunization against tuberculosis but also the subject of experimental cancer research were discussed, this year, at the Vienna session of the Deutsche Vereinigung für Mikrobiologie and also at the Danzig meeting of the Deutsche Pathologische Gesellschaft. At the meeting of the Deutsche Pathologische Gesellschaft, the theme was treated by Professor Borst (Munich), Professor Schmieden (Frankfort-on-the-Main), and Professor Teutschländer (Heidelberg), the wording of the topic being "infection, parasitism and growth formation." All three speakers expressed the belief that there is no adequate evidence that a transmissible parasite is the causative agent for malignant tumors in man. Professor Borst leaned toward the view that tumors are manifestations of excess growth and are made up of the tissues of the body of the bearer. There are various reasons for rejecting the assumption of a parasitic nature. A large proportion of parasites manifest an affinity for certain tissues and organs, whereas there is no evidence that the causative agent of cancer has any such affinity. Cancer attacks all organs with varying frequency and develops types showing a wide range of differentiation as to structure. Under these circumstances, one would have to assume the existence of a large number of cancer agents; for example, a causative agent for a skin cancroid and another for a cancer of the uterus. There are mixed types of cancer and sarcoma, that is to say, a transition from one form to the other; but, on the assumption of parasites as causative agents, we should have to postulate a cancer agent and a sarcoma agent existing side by side or one succeeding the other. The structural peculiarities are even more difficult to explain on the basis of the infection theory; for example, the tumors that are associated with the embryonic development of the organ concerned, as many kidney tumors that recall the embryonic kidney. Here one would have to assume an activation of the potentialities by the causative agent. The development from a fibroma to a sarcoma corresponds in all its phases to a morphologic series. Likewise, a continuity of normal conditions may be followed in cancer; for example, in cancer of the liver cells. In metastases, the new tumors develop from transmitted cell material and not on the spot, as the result of an infection brought to that site. The functional relations to the mother tissue may be preserved and may vary with the organ. Against the theory of infection may be adduced, further, the results of immunobiologic research, which do not reveal specificity of the humoral reaction in transplantations. Transplantations follow different laws from any ordinary infection with respect to the relationship of experimental animals. Contagiousness is still unproved. The rôle of malformations for a number of malignant tumors is established; also the part played by certain hereditary influences; but there is no connecting link with a living causative agent. The experimental observations of recent years permit a more or less certain separation of endogenous and exogenous factors in the origin of cancer; but much can be adduced in opposition to and nothing in favor of the assumption that a parasite is a decisive exogenous factor in the ordinary development of cancer. Even though cancers may be produced experimentally with parasites, that is only one of many ways in which irritations of a nonspecific nature may act.

Schmieden regards the parasite theory of the origin of cancer as an exploded hypothesis that now counts but few adherents. The alleged proofs (frequency of cancer in families or in so-called cancer houses) are uncontrolled observations explainable in part by chance and in part by other causes. Cancer as a disease lacks all the clinical characteristics of an infectious malady, and physicians must be careful not to give laymen the impression that cancer is a contagious disease. The fact that it is possible to cultivate cancer cells outside the body and to increase their virulence by passage through animals has given false support to the bacterial theory. Heredity and familial predisposition are, in their effects, often falsely cited as proofs of an infection and in support of the parasite theory. The cancers produced by exogenous factors (occupational cancers) are irritation cancers, pure and simple, for the explanation of which no specific causative agent need be postulated. The same is true of cancers that develop in the terrain of chronic inflammation or infections, and by metamorphosis of old ulcers. In the latter cases, the conception of a regeneration process that overshoots the mark, as it were, as the cause of the malignant growth is supported by greater probability. In many carcinomas the endogenous factors predominate (general predisposition, predisposition of organs, predisposition of age). Of greater importance than researches on causative agents is the study of precancerous conditions and certain precursory diseases, which, as has been observed, often lead to cancer.

Professor Teutschländer spoke on the subject as follows: There are a number of higher parasites (particularly worms) that play an important part in the origin of certain cancer formations. Also certain parasites with which, experimentally, no tumors have been produced; among others, certain external parasites (mites) may produce similar effects. Not any of these parasites can be termed specific causative agents. There is no universal causative agent. The existence of a group of filtrable, invisible micro-organisms, strictly specific for certain tissues, living in symbiosis with proliferative body cells, and converting by their presence such body cells into apparently autonomous malignant tumor elements, has not been proved by researches on Rous tumors. There is support for the assumption of the transmission of living cells, and the conception of a causative agent can be opposed. Until the position of the Rous tumors and their mode of transmission are cleared up, generalizations based on them should be avoided. The specific factor in the origin of cancer is endogenous. There are also cancer formations without precancerous infections, and there are probably also purely endogenous tumor formations. Cancer is not contagious, but precancerous infectious diseases may be directly contagious or indirectly transmissible. This supplies the explanation for endemic cancer outbreaks, "cancer houses," "cancer cages," and the like.

### Institute for Research in Internal Medicine

An institute for research in internal medicine is to be established at the University of Heidelberg with funds to be furnished by the central government, the state of Baden and the city of Heidelberg. As a first grant, the sum of 780,000 marks ($195,000) has been appropriated for the institute. The city of Heidelberg will furnish the site for the building. Professor Krehl, the director of the Heidelberg Medizinische Klinik, is to be the head of the new institute. The institute will contain departments for pathologic physiology, medical chemistry, medical physics and medical psychology, and for researches on cancer and serums. Previously existing special institutes will be absorbed by the new institute. The directors of the various departments of the institute will not be under obligation to give instruction. In this respect, the institute forms an integral part of the previous creations of the Kaiser Wilhelm-Gesellschaft for the advancement of science and is analogous to the large Germanic institutes. The annual budget of the new institute is estimated at 300,000 marks (about $75,000).

## ITALY

*(From Our Regular Correspondent)*

July 15, 1927.

### Reduction of Fee Schedules

More than a thousand physicians of Rome and the provinces met recently in Campidoglio and decided on a 10 per cent reduction of the present fee schedules for physicians and surgeons, in view of the revaluation of the lira. It was also decided that members of workingmen's unions requiring medical certificates be furnished them without charge.

### Congress of Legal Medicine

After an interval of fourteen years since the last meeting, the third National Congress of Legal Medicine convened in Florence, recently.

The first topic on the program, "legal medicine in Italy during the past ten years," was developed by Prof. G. Perrando, occupant of the chair of legal medicine in Genoa. After referring to the characteristics of the two preceding congresses (that of 1858 dominated by the anthropologic doctrines of Lombroso, and that of 1913, which concerned itself chiefly with researches on accidents, the leading spirit of which was Borri), the speaker passed in review the work accomplished by Italian fosterers of legal medicine during the past fourteen years. In the field of anthropology and criminal psychology, he recalled Ottolenghi's teachings in regard to scientific police systems and the present development of legal medicine in relation to incarceration of criminals. In social insurance and industrial legal medicine, in addition to the outstanding work of Borri, he referred to the work of Biondi, Devoto and Ferrannini. With regard to traumatology, in addition to the researches of Romanese, Cazzaniga and Lattes, he emphasized the value of the investigations of Benassi on subjects connected with war surgery. Hematology has been the field of numerous researches, notable among which are Lattes' studies on the blood groups. There have been important contributions on asphyxiology, toxicology, sexology and thanatology. The present tendencies of legal medicine are in the direction of the sex problem, movements for the protection of the human race, and various aspects of the labor problem, more particularly the best methods of obtaining the maximum human output.

The second topic, "the importance of the constitutional factor in the causation, the amount of damage, and the settlement of industrial accidents," was treated by Prof. Cesare Biondi of the University of Siena. He recalled the importance attributed by certain Italian authors (Pieraccini and Maffei, Merin) and by American authors to the factor of the individual in the causation of accidents, emphasizing that subjects who react more readily to their emotions and who are unable to check their psychomotor and neurovegetative reflexes are more likely to meet with accidents. The constitutional factor seems to have great importance.

The third topic was "acute poisoning from carbon monoxide," which was developed by Professor Leoncini of the University of Florence, who, in explaining the anatomopathologic observations of such poisoning, stated that it was necessary to distinguish the cases in which death occurred in the toxic atmosphere, or immediately after the individual had been subjected to it, from the cases in which death ensued a considerable time after the subject had breathed in the poisoned atmosphere. In the former cases there are many symptoms but none that are decisive; the most important is the appearance of the blood, although that is not pathognomonic. Speaking of the various methods of research on carbon monoxide in the blood, the author emphasized the method of research that should be employed on the cadaver to avoid causes of error, such as the possible diffusion of the carbon monoxide in the blood, or the postmortem penetration of carbon monoxide, which may easily occur in a cadaver remaining for some time in a toxic atmosphere. The speaker then explained the complications and the symptoms that may be encountered in persons who died a considerable time after having been subjected to the contaminated atmosphere. Discussing finally the question whether it is possible, by examination of the cadaver, to decide whether the intoxication is due to carbon monoxide or to illuminating gas, the speaker, after giving a critical review of the various differential criteria that have been proposed, expressed the view that as yet no reliable method of differentiation had been discovered.

The third topic, "legal medicine in relation to a scientific police system," was presented by Professor Ottolenghi of the University of Rome. He stated that the first attempt to reduce police systems to a science dates back to Lombroso (1879). In 1897 the first course in scientific police work was given at Siena, which was followed by the creation of the special department in the Direzione generale della pubblica sicurezza (1902). At present, the scientific organization of a police system provides not only for detection and punishment of criminals but also for the prevention of crime, and is developed along three different practical lines, namely, identification services, clue-collecting services, and the anthropologic and biographic service. The speaker explained the purposes of the descriptive card-index (*cartellino segnalettico*) and the reenactment at the scence of the crime, together with the problem of identification. Legal medicine pertaining to the organization of police systems presupposes also the creation of a new office, that of *medico di questura*, or police physician.

Some seventy-five further communications were presented by the conventionists, with many contributions from the army medical corps, particularly on legal medicine pertaining to aviation. A number of sessions of the congress were held also in the school of the army medical department in the psychophysiologic institute for the examination of aerial pilots. A marble bust of Professor Lorenzo Borri, former occupant of the chair of legal medicine, who died in 1923, was unveiled. Bologna was chosen as the meeting place of the next congress, to be held in 1929.

### The Abuse of Cocaine

Gnocchi, a member of the chamber of deputies, submitted recently to the minister of the interior the question as to whether it was not advisable to prohibit the sale of cocaine within Italian territory. The undersecretary of state responded, after instituting an inquiry, that it was held that cocaine, at the present time, is irreplaceable in the fields of dermatology, ophthalmology, otorhinolaryngology, etc. The substitution of aqueous solutions of cocaine for the solid substance was also adjudged impracticable by competent technicians. The legal trade in narcotics is at present subjected to every safeguard, and the government displays great energy in suppressing the clandestine trade.

## *Marriages*

BARCLAY J. MOON, Cedar Rapids, Iowa, to Miss Dorothy Hallett of Bloomington, Ill., June 7.

ROBERT F. MCILWAIN, Marion, Ind., to DR. ELEANOR ELIZABETH HARPER of Milan, August, 14.

ROBERT J. DOUGLAS, Muskegon Heights, Mich., to Dr. ENID FILLINGHAM of Muskegon, July 1.

EVERETT A. KING to Miss Margaret Simminger, both of Fort Wayne, Ind., May 21.

JULIUS R. HAMILTON to Miss Mabel J. Van Gunter, both of Los Angeles, September 3.

# Deaths

**Orange Garrett Pfaff** ✠ Indianapolis; Medical College of Indiana, Indianapolis, 1882; professor of gynecology, Indiana University School of Medicine; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; past president of the Indianapolis Medical Society; on the staffs of the Robert Long, City, St. Vincent's and the new Coleman hospitals; served during the World War; aged 70; died, August 26, at the Clinic Hospital, Columbus, Ohio, of hemorrhage while suffering from myelogenous leukemia.

**George Hunter Price** ✠ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1888; professor of physiology, 1894-1904; secretary, 1900-1903; clinical professor and professor of diseases of the eye, ear, nose and throat, 1904-1925, and since 1925 professor emeritus at his alma mater; formerly secretary of the Tennessee State Medical Association and at one time editor of its journal; aged 68; died, August 1, of valvular heart disease and arthritis.

**Theodore Jacob Elterich** ✠ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1889; member of the Central States Pediatric Society; assistant professor of pediatrics at the University of Pittsburgh School of Medicine; on the staffs of the Allegheny General, and St. Margaret's hospitals; aged 60; died, July 26, in Philadelphia.

**Herbert F. Sterzing,** El Paso, Texas; University of Texas School of Medicine, Galveston, 1900; formerly superintendent of the El Paso County Hospital; at one time on the staff of the John Sealy Hospital, Galveston, and the City Hospital, Austin; aged 52; died, April 29, of pulmonary tuberculosis.

**Hubert Wood,** Waialua, Hawaii; Jefferson Medical College of Philadelphia, 1895; Dalhousie University Faculty of Medicine, Halifax, N. S., Canada, 1896; member of the Hawaii Territorial Medical Association; aged 61; died, May 13, at the Queen's Hospital, Honolulu, of retroperitoneal sarcoma.

**John D. Fitzpatrick,** Whitesburg, Ky.; Kentucky University Medical Department, Louisville, 1904; for more than twelve years president of the First National Bank; formerly county judge of Letcher County; aged 47; died, August 17, of cirrhosis of the liver.

**William Fitzgerald,** Cedar Rapids, Iowa; State University of Iowa College of Medicine, Iowa City, 1876; member of the Iowa State Medical Society; on the staff of the Mercy Hospital; aged 72; died, July 24, of myocarditis and carcinoma of the tongue.

**William B. Lawrence** ✠ Batesville, Ark.; Jefferson Medical College of Philadelphia, 1877; past president of the Arkansas Medical Society, and the Independence County Medical Society; county health officer; aged 73; died, July 5, of acute colitis.

**Philip Chapman** ✠ Smithville, Texas; Vanderbilt University School of Medicine, Nashville, 1892; formerly secretary of the Bastrop County Medical Society; at one time mayor of Smithville; aged 57; died, August 2, of cerebral hemorrhage.

**Hosea J. White,** Ainsworth, Neb.; College of Physicians and Surgeons, Keokuk, 1885; formerly member of the state legislature; on the staff of the Brown County (Ainsworth) Hospital; aged 73; died, August 11, of chronic myocarditis.

**John C. Elliott,** Chilliwack, B. C., University of Western Ontario Medical School, London, 1903; aged 50; died, July 4, at the Chilliwick Hospital, of injuries received when the automobile in which he was driving was struck by a train.

**Jonas M. Kistler,** Minneapolis; Jefferson Medical College of Philadelphia, 1883; formerly member of the city council, county physician and county coroner; aged 70; died, August 13, at the Swedish Hospital, of cerebral hemorrhage.

**Charles Mathews Swindler** ✠ Pittsburgh; University of Pittsburgh School of Medicine, 1911; member of the Associated Anesthetists of the United States and Canada; aged 48; died, August 12, of carcinoma of the bladder.

**Henry Green Wildman,** Winnetka, Ill.; Medical Department of Columbia College, New York, 1880; member of the Illinois State Medical Society; aged 69; died, August 26, at a hospital in Evanston, following an operation.

**William Frank Graham** ✠ Atlantic, Iowa; Rush Medical College, Chicago, 1880; aged 72; on the staff of the Atlantic Hospital, where he died, August 8, following an operation for carcinoma of the splenic flexure of the colon.

**Charles F. Peckham** ✠ Providence, R. I.; Medical Department of Columbia College, New York, 1890; veteran of the Spanish-American War; aged 57; died, August 17, at Warwick Neck, of cerebral hemorrhage.

**Sylvester F. Hazen,** Hartstown, Pa.; College of Physicians and Surgeons, Chicago, 1892; member of the Medical Society of the State of Pennsylvania; aged 67; died, in August, of cerebral hemorrhage.

**George Morrill Kimball,** Concord, N. H.; Harvard University Medical School, Boston, 1884; member of the New Hampshire Medical Society; aged 72; died, in August, of angina pectoris.

**Harry George Bogart,** Long Island City, N. Y.; St. Louis University School of Medicine, 1921; aged 29; was drowned, August 10, when his canoe capsized at Hunter's Grove, Oquosso, Me.

**Richard Wilmot Deaver** ✠ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1874; aged 79; died, August 13, at the Germantown Hospital, of cerebral hemorrhage.

**William Thomas Swanson,** Callands, Va.; College of Physicians and Surgeons, Baltimore, 1877; aged 77; died, August 4, at the Hughes Memorial Hospital, Danville, of pneumonia.

**Bela M. Armstrong,** Idabel, Okla.; University of Louisville (Ky.) School of Medicine, 1892; aged 59; died, August 10, at the De Queen (Ark.) Hospital, of carcinoma of the bladder.

**Russell Bower Lynn,** Elmira, N. Y.; University of Pennsylvania school of Medicine, Philadelphia, 1906; aged 47; died, August 5, at St. Joseph's Hospital, of pulmonary tuberculosis.

**Orren LeRoy Barton,** Loomis, Calif.; Medical College of Ohio, Cincinnati, 1879; member of the California Medical Association; aged 78; died, July 14, of arteriosclerosis.

**Charlotte Campbell Pratt,** Gardner, N. D.; University of Minnesota Medical School, Minneapolis, 1900; aged about 52; died, in June, of embolism, following an operation.

**Carlie Wyley Davidson** ✠ Bogalusa, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1914; aged 45; died suddenly, August 3, of angina pectoris.

**Jacob Pence Buroker,** Sweetsers, Ind.; Curtis Physio-Medical Institute, Marion, 1897; Civil War Veteran; aged 80; died, August 7, of paralysis.

**Daniel Moyer Landis,** Perkasie, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1889; aged 63; died, August 11, of heart disease.

**James Aleck Rankin,** Los Angeles; Jefferson Medical College of Philadelphia, 1883; aged 70; died, August 9, of pernicious anemia.

**Philippe J. B. Le Blanc,** Fairbanks, Alaska; Detroit College of Medicine and Surgery, 1886; aged 62; died, May 18, of cerebral hemorrhage.

**Henry Gilborne,** Clay Center, Neb.; Hahnemann Medical College of Philadelphia, 1872; aged 87; died, July 24, of cerebral hemorrhage.

**Chester Knox Roe,** Bay St. Louis, Miss.; Louisville (Ky.) Medical College, 1871; Civil War veteran; aged 82; died, July 21, of nephritis.

**Edwin James Rothwell,** New Westminster, B. C.; University of Toronto (Ont.) Faculty of Medicine, 1896; aged 57; died recently.

**Robert M. Wallace,** Pittsburgh; Cleveland Homeopathic Medical College, 1900; aged 50; died, August 15, of heart disease.

**Edward D. Porter,** Indianapolis; Medical College of Indiana, Indianapolis, 1882; aged 67; died, July 4, of angina pectoris.

**William C. Hottle,** Oklahoma City (registered, Oklahoma, under the Act of 1908); aged 51; died suddenly, August 10.

**John H. Newman,** Cherryvale, Kan.; Eclectic Medical Institute, Cincinnati, 1854; aged 88; died, in July, of senility.

**William C. Hance,** Degraff, Ohio; Pulte Medical College, Cincinnati, 1888; aged 69; died, August 9, of heart disease.

**Adelbert Hewitt,** Brooklyn; Albany (N. Y.) Medical College, 1869; aged 81; died, August 13, of heart disease.

**John B. Haynes,** Dundee, Mich.; Detroit Medical College, 1881; aged 78; died, August 5, of cerebral hemorrhage.

**James Franklin Wood,** Los Angeles; St. Louis Medical College, 1878; aged 70; died, in August, of myocarditis.

**Frank H. Johnston,** Burford, Ont., Canada; Trinity Medical College, Toronto, 1882; died suddenly, in July.

## Correspondence

### INTRACELLULAR HYDROGEN ION CONCENTRATION OF LIVING CELLS

*To the Editor:*—In THE JOURNAL, July 30, appeared a communication from Dr. Edward J. Stieglitz in which he expressed the opinion that the editorial in THE JOURNAL, July 2, commenting on intracellular hydrogen ion concentration of living cells (Chambers, R., and Pollack, H.: *J. Gen. Physiol.* **10**:739, 1927) is misleading. Dr. Stieglitz cites his own work and that of Harvey and Bensley to show that considerable fluctuation in hydrogen ion concentration may be possible.

This problem has been under intensive study in Dr. Chambers' laboratory, and we find that where such changes have been reported we are dealing with one of at least two conditions:

1. The cell when injured becomes acid, and when killed loses its independence from the environment of maintaining its own hydrogen ion concentration.

2. The dye may accumulate in intracellular granules and vacuoles which are secretory and excretory products of protoplasm, and register a color which bears no relation whatever to the $p_H$ of the optically structureless groundwork of cytoplasm which is considered the living protoplasm.

Therefore, although the admonition to the editor to avoid sweeping conclusions is always justified, in this case the editor's comment is in keeping with all evidence gathered from work with *living protoplasm.*

PAUL REZNIKOFF, M.D., New York.

### TOXICOLOGIC NOTE ON NICOTINE

*To the Editor:*—I have recently been asked for my opinion as a pharmacologist and toxicologist concerning an order made by a physician which was of such a nature that it is deemed desirable to publish a comment concerning it in this place. This order called for from twenty-five to thirty doses of nicotine alkaloid in solution, each dose containing one-thirtieth grain (2 mg.) of the nicotine alkaloid to be used by the physician for intramuscular injection in a patient.

In my experience of twenty years as a physician and pharmacologist this was the first time that I have actually come across a prescription calling for nicotine to be used therapeutically (?), and as a specialist in pharmacology and experimental therapeutics I thought it worth while to review briefly the toxicology of nicotine for the benefit of the general profession.

Nicotine is no longer recommended for therapeutic use in man. To quote from two of the most popular textbooks on pharmacology, Cushny states that "nicotine and the other members of the group are not used in therapeutics." Sollmann, in his Manual of Pharmacology, says: "Nicotine is one of the most fatal and rapid of poisons. The vapor arising from a glass rod moistened with it and brought near the beak of a small bird causes it to drop dead at once, and two drops placed on the gums of a dog may cause a similar result. The fatal dose for man is about 60 milligrams. . . . Severe cases show immediate faintness, prostration and muscular weakness, severe nausea, vomiting and diarrhea, followed quickly by convulsions." Severe poisoning with much smaller doses of nicotine have been carefully studied in man. Sollmann says: "After 1 to 4 mg. there were burning in the mouth, a scratching sensation in the pharynx, increased salivation, a sensation of heat spreading from the region of the stomach over the whole body; excitement with headache now appeared then vertigo, confusion, disturbed vision and hearing, photophobia, dryness in mouth, cold extremities, nausea and vomiting and diarrhea. Respiration quickened but difficult. Pulse at first increased then irregular. After forty-five minutes there was syncope with clonic spasms. Recovery occurred, but a general depression persisted for three days." I have shown in animals that this poison can be rapidly absorbed not only from the mouth but also through other mucous membranes. Thus I have shown that this alkaloid and its salts can be absorbed through the conjunctiva (*J. Pharmacol. & Exper. Therap.* **22**:35 [Aug.] 1923), through the urethra (*J. Urology* **2**:43 [Feb.] 1918), through the vagina (*J. Pharmacol. & Exper. Therap.* **10**:508 [Jan.] 1918) and even through the intact ear drum (*Bull. Johns Hopkins Hosp.* **29**:165 [July] 1918). E. C. Garvin (*Cleveland M. J.* **12**:130, 1913) has reported fatal poisoning in a child, aged 6½ years, who received a rectal injection of 1 pint of water in which was dissolved 1½ teaspoonfuls of smoking tobacco. These few references, which could be readily multiplied, should serve as a note of warning to all practitioners of medicine against the careless and thoughtless employment in their clinical practice of powerful drugs or substitutes concerning the pharmacologic action of which they know very little. The foregoing report is a sad commentary on the inadequate acquaintance of many physicians with the elementary facts of pharmacology and toxicology. A word to the wise is sufficient. Unless a physician swallows thoughtlessly every advertisement that he sees in second rate medical journals or newspapers, or blindly accepts the claims of unscrupulous medicine makers, he will in every case of doubt consult either a reliable source of literature or a specialist, to keep him from causing harm.

DAVID I. MACHT, M.D., Baltimore.
Pharmacological Research Laboratory,
Hynson, Westcott & Dunning.

## Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### PROLAPSE AND INVERSION OF THE UTERUS POST PARTUM

*To the Editor:*—Can you give me information on complete prolapse and inversion of the uterus immediately following delivery? How frequent are these cases? How many are reported in the literature? I would appreciate any other information that you might think of interest in relation to the case.

HARRY R. KEISER, Chicago.

ANSWER.—More than 800 cases of inversion of the puerperal uterus have been reported in the literature since 1887. Of course, more cases have occurred but not all were reported in the literature. This is because most of the reports have come from well organized obstetric clinics, but relatively few from practitioners who have experienced such cases during their practice in patients' homes. The incidence of inversion is variously estimated. In Germany during the last twenty-two years, among 30,400,000 laborers there were seventy-six cases, an incidence of 1 in 400,000 cases. In the Netherlands from 1896 to 1917 there were twenty-four cases in 3,500,000 births, an incidence of 1 in 146,000; and in a collected series (Cohen) of 1,603,740 from various sources there were thirteen cases, an incidence of 1 in 123,364.

While some cases of inversion occur spontaneously, the vast majority are usually caused by undue relaxation of the uterine musculature, traction on the cord from below, or excessive pressure on the uterus from above. In the acute cases the symptoms usually are sharp pain, hemorrhage and shock, which is usually greater than the blood loss would justify. In the chronic cases there are backache, bearing-down pains, bleeding, leukorrhea, bladder and rectal disturbances, symptoms of anemia, and mild fever. The diagnosis is generally easy to make by examination. The prognosis has steadily become more favorable because of improvement in asepsis and better obstetric training. The mortality in

acute cases has been reduced to about 22 per cent. Operation during shock greatly increases the mortality. Treatment may be operative or nonoperative. If the patient is in shock it may be advisable to push the uterus back into the vagina, pack the vagina with gauze, give morphine, a transfusion or saline solution, and wait until the patient rallies before finally replacing the uterus. If hemorrhage is present, replacement must be attempted in spite of shock. An anesthetic may or may not be necessary. The conservative procedures are manual reposition, and replacement of the fundus by pressure applied to it from below by means of gauze packs or colpeurynters. Operative procedures may be performed abdominally or vaginally. The abdominal route is better for recent cases, while the vaginal route is more advantageous in cases of chronic inversion. By either route the uterus may simply be replaced or removed if found necessary.

## ARTIFICIAL RESPIRATION

*To the Editor:*—1. What is the consensus with regard to the use of the pulmotor in artificial respiration? Is it considered superior to the manual method? 2. What is the greatest length of time in which artificial respiration has been carried to a successful termination in an authenticated case? 3. Is it considered possible that a patient may be resuscitated after artificial respiration has been carried on for one hour, without his having an occasional voluntary respiration during that period. 4. What is considered as the time limit, when a person is totally submerged, in which artificial respiration would be useless? Kindly omit my name.

M.D., Florida.

ANSWER.—1. The following quotation from "First Aid and Resuscitation in Gas Asphyxia," a booklet prepared for the American Gas Association by the Commission on Resuscitation from Gas Asphyxia, 1923, page 9, covers the comparative value of resuscitation by the manual method and by the pulmotor:

> If the patient is not breathing, start artificial respiration immediately by the prone pressure (Schäfer) method. This is the best method for artificial respiration. It is better than any method using a mechanical device. If the victim is breathing, an artificial respiration apparatus may injure him. If he is not breathing, he may die while you are going to get the apparatus or getting ready to use it. It is the opinion of the commission that such apparatus has led to the deaths of more people than it has saved.

The pulmotor is inferior to the prone pressure method. The use of the apparatus should be discouraged.

2. Uncertain—probably well over one hour.

3. Yes, in rare cases.

4. Ten minutes of complete submergence is usually given as the time limit.

## ONSET OF RIGOR MORTIS — AGO-CHOLAN TABLETS

*To the Editor:*—1. Occasionally one reads that a coroner has said a person has been dead approximately so many hours. If the onset of rigor mortis varies in different persons, how can the time of death be determined? 2. What are the ingredients and what is the therapeutic value of Ago-Cholan tablets made by Bilhuber? Please omit name.

M.D., Pennsylvania.

ANSWER.—1. At best, all estimates of the length of time since death occurred can only be approximate. Observations on the temperature of the corpse, on the state of rigor mortis, and on putrefactive and other changes in the body depend for accuracy on the precise knowledge of so many different factors, both external and internal, that all efforts at calculating the time of death from the state of the cadaver always will be associated with great and often insurmountable difficulties.

2. The statements made by E. Bilhuber, Inc., regarding the composition of Ago-Cholan are contradictory and indefinite. An advertising card sent out during 1926 gives "strontium cholo-salicylate" as a synonym. An advertisement published the same year declares that "chemically it is strontium-cholosalicylate to which is added a small quantity of phenolphthalein-diacetate. . . ." A circular received in 1925 gives the following "composition": "Ago-Cholan contains as its active principle the combined cholic and salicylic acid salts of strontium (2 grains in each tablet) and a small quantity of phenolphthalein-diacetate (0.2 grain)." From the latter statement one may conclude that the "strontium cholosalicylate" is nothing more than a mixture of the cholic and salicylic acid salts of strontium in unstated proportions. Available books on therapeutics do not refer to the use of phenolphthalein diacetate, but one would not except that the purgative properties of such a compound would differ materially from the official phenolphthalein.

Ago-Cholan has been advertised as a "potent stimulant and antiseptic for the treatment of biliary and hepatic disorders and the prevention of gallstones." We have no information bearing on the validity of this claim. E. Bilhuber, Inc., has not requested an examination of the product by the Council on Pharmacy and Chemistry, and so far the Council has not examined the product or the claims that are made for it.

## TUBERCULOSIS OF THE TESTIS

*To the Editor:*—A man had an attack of genital tuberculosis beginning in October, 1926. One testis swelled and discharged pus. He had about a month of ultraviolet ray treatment. Finally, in March, 1927, the infected testis was removed and the cord of the normal side was ligated to prevent infection of the other testis. Later infection occurred at the end of the cord where the testis was taken out, pus discharged through the stitch line, and the skin around it showed some induration. After two months the general condition improved and the discharge ceased, but there is still a piece of thickened flesh around the stitch line. 1. Will the place referred to finally heal and no further trouble develop? 2. What are the unmistakable signs of lack of internal secretion for a person who does mental work? (Since operation, the patient has shown lack of pep and tires easily.) 3. What are the usual practices in insurance and employment regarding such a case? 4. Is there much danger that a second operation to join the cord on the normal side will renew the old infection and thus cause the other testis to be involved? 5. Does the restoration operation require high skill of the surgeon? 6. Is there much certainty that, after the cord is restored, spermatozoa will be generated and discharged? 7. What would you recommend for precautions and observances with respect to the local situation and health in general?

C. C. T., New Jersey.

ANSWER.—Tuberculosis of the male genitals is virtually always secondary to preexisting tuberculous foci in other parts of the body; these may remain undiscovered—as in the lymph glands connected with lungs or intestine—until careful examination, perhaps including roentgen-ray inspection, is made. Hence attention is often limited, as in the present case, to the obvious local disease. Yet to treat only the recognized disease in the genitals is no more rational than to mop up a wet floor without turning off the running faucet. The removal of a tuberculous testis does not prevent the subsequent appearance of the disease in new locations, among which the remaining testis is especially frequent; it is probable that a trained finger in the rectum would even now detect the infection in the seminal vesicle and the prostate of this patient.

From what has been said it is obvious that most of the questions, because based on a misconception of the situation, are at present irrelevant. Should the infection be allowed to spread to new localities, including the remaining testis, these questions will never require answers for this inquiry at least. If, on the other hand, the infection now existing in various parts of his body is repressed, the questions will be answered by the progress of the condition with two exceptions (5 and 6). To these it may be replied that the canal along which sperms pass from the testis (vas deferens) can usually be restored—if the tissues are healthy—by an expert in this branch of surgery (urology).

## CONTROL OF PERSPIRATION IN BRASS INDUSTRIES

*To the Editor:*—I have been asked by one of our manufacturers of highly polished brass articles whether there is not some harmless powder available for neutralizing the sweat on the hands and forearms of their buffers, to prevent staining the brass. It seems that the perspiration from the hands and arms causes a blotch on the polished brass surfaces, which later chemical treatment to retain the polish does not remove, and if the articles are returned to be rebuffed the same experience prevails, particularly in warm weather.

M. ALVORD GORE, M.D., Bristol, Conn.

ANSWER.—Contact between the hands of workmen and polished metals under the conditions given by our correspondent leads to actual etching of the metals as well as to staining. The cause may not with certainty be attributed to any acid content of the perspiration, for certain organic acids are employed in brass polishing without harm to the metal, and, moreover, the perspiration is frequently neutral or alkaline in reaction.

It is the experience of some factories that less injury to metal results from the work of blond polishers. For this reason brunets are not permitted to engage in the final finish polishing.

A number of liquids have been employed to minimize sweating. The application of benzine during the work day, at about one hour intervals, is said to lead to a cessation of hand sweating after about two minutes, when this laving may

be discontinued. Applications of dilute solution of formaldehyde for a few nights will have the same result. The use of those astringents, such as aluminum chloride, commonly recommended as human deodorants will inhibit sweating. Although these measures will effectively protect the metal, it is to be noted that workmen frequently develop a dermatitis from many of the substances mentioned.

Quick drying alkali soap pastes are marketed as repellents of paints, naphthas and factory oils. These soap pastes, when applied, form an invisible coating over the hands and forearms. They have been recommended for the protection of metals against perspiration with the best results.

The simplest substances likely to be efficacious are the inert powders, such as rice powder, powdered sumac and soapstone. When sufficiently fine they do not harm metals, and only rarely does a workman suffer any inconvenience. These powders act only by taking up the moisture as it forms. Dust powders should be kept near the work place, so as to be used frequently and freely.

## SIGNIFICANCE OF SHREDS IN URINE

*To the Editor:*—What is the significance of shreds in the urine of a patient about six months after he has been discharged as cured? Are not shreds evidence of residual pathologic change in the urethra? I have been told by a urologist that shreds appear in the urine sometimes for two years after being cured, and the best thing is to leave them alone. What form of treatment would you suggest to clear up the urine of shreds? Kindly omit name.

M.D., New Jersey.

ANSWER.—Shreds in the urine are an evidence of residual pathologic change. These shreds are nothing else but purulent membranes rolled up by the urinary stream. These membranes are exuded by the solitary inflammatory spots in the urethral mucosa characteristic of the chronic stage of gonorrhea. True enough, it is difficult or impossible as a rule to demonstrate by staining the gonococci in these shreds, but that does not disprove that gonococci are still residing in the indurations beneath the pus-producing spots. The germs become again demonstrable if by irritation the constituents of the infiltrated areas become mobilized and reach the surface. As such irritants may be mentioned the intake of effervescent alcoholic beverages, sounding and irritating irrigations, and the intramuscular injections of foreign proteins.

The disappearance of the shreds depends on the absorption of the submucous infiltrations and the elimination of reinfection originating in the prostate and seminal vesicles, which organs are invariably involved in chronic gonorrhea. The urethral infiltrations are combated by methodical dilation with subsequent instillations, and systematic massage of prostate and seminal vesicles will clear up the infectious foci in these organs. In the latter instances medical diathermy and injections of foreign proteins are helpful.

## TREATMENT OF GONORRHEA

*To the Editor:*—There are so many drugs on the market that claim to be a specific for gonorrhea that I should like to know your opinion with regard to the most valuable drug. I have tried many of these, and also diathermy, without any remarkable success. Also, let me know what you think of hypodermic injections of vaccine and serum in the treatment of gonorrhea. Kindly omit my name.

M.D., Wisconsin.

ANSWER.—There is no drug on the market whose merits in treating urethral gonorrhea are decidedly superior to those of all the other drugs commonly in use. It is not so important which chemical agent is used as how it is administered. A direct germicidal action is possible only on the gonococci lying on the surface of the urethral mucosa. The tendency of the gonococci to penetrate rapidly in the deeper layers prevents any such action after they once are colonized in the substrata. Under such conditions to destroy these germs by immediate contact with a disinfectant is a problem that awaits solution. It is the "changing of the soil," that is the real therapeutic procedure. The necessary reaction is brought about by the production of an artificial edema leading to rapid desquamation of the epithelium and the production of a mild inflammatory reaction in the deeper layers. The first may be accomplished by irrigations with weak watery solutions of any disinfectant (potassium permanganate or silver salts), the latter by the instillation of small quantities of a more concentrated solution of silver salts (from 0.5 to 2 per cent). Irrigation by means of a catheter seems to be less frequently followed by complications than those done with a nozzle. Instillations are administered with a capillary Guyon catheter. It is of course necessary that irrigations and instillations reach all the diseased parts of the urethral mucosa. Involvement of the posterior urethra calls for irrigation after Diday's method. The use of a Guyon catheter insures the deposition of the instilled fluid into the prostatic urethra. Chronic submucous infiltrations have to be made amenable to the production of the reaction to the medicament by dilation and massage. There is no evidence that vaccines or serums have a curative influence on urethral gonorrhea. The same may be said of diathermy.

A successful treatment of chronic gonorrhea depends also on the proper attention to the concomitant prostatitis and vesiculitis.

## PEELING THE EAR DRUM

*To the Editor:*—Occasionally I have had my patients speak of some friend who has gone to a doctor regularly for "peeling of the ear drum." Will you please let me know what is meant by "peeling of the ear drum," why it is used, how it is performed, and who does it?

VERNON A. CHAPMAN, M.D., Milwaukee.

ANSWER.—Peeling of the ear drum usually results from a dermatitis, or from some caustic applied to the drum membrane or to the external auditory canal. As a rule there is no intention of causing this peeling and a great many measures are used to prevent its spontaneous occurrence from eczema or other cases of irritation of the skin lining the auditory canal. In these cases a sedative with an oily base is usually applied. Some physicians, especially in England, have applied collodion to the drum membrane for the purpose of making the latter more tense in the effort to improve hearing. Furthermore, collodion containing cantharides or other irritating substances has sometimes been applied to the drum membrane for the purpose of producing counterirritation and an inflammatory reaction which is supposed to act beneficially on the middle ear. It is rather doubtful whether these procedures are of any great value, and extreme caution against the use of caustics applied to the drum membrane is advisable, since serious lesions such as ulceration and perforation of the drum membrane may result. Nothing of an irritative nature should be applied to the drum membrane if there are indications for the use of such an application by any one but the attending otologist.

## TREATMENT OF INTESTINAL FLATULENCE

*To the Editor:*—Will you kindly describe the best dietetic and other treatment for intestinal flatulence? Please omit my name.

M.D., Pennsylvania.

ANSWER.—Intestinal flatulence is due to two factors: (1) deficient digestion and absorption of carbohydrate, and (2) increased activity of the micro-organisms of fermentation.

The cause for the digestive abnormality should be investigated by thorough gastro-intestinal examination, including roentgenologic series and test meal (for achlorhydria may 'cause intestinal flatulence), and remedied as much as possible.

The diet suitable for such cases is one rich in protein and fat, and poor in carbohydrate; a diet similar to that used in diabetes mellitus, excepting that vegetables rich in cellulose must also be avoided or at least selected with care.

To diminish the activity of the micro-organisms of fermentation, one should start out with virtual starvation for, perhaps, two days: permitting only coffee or tea—without sugar—clear soup or beef tea, lemonade or grapefruit. Gluside (saccharin) may be employed for sweetening. This is accompanied by thorough evacuation, by means of mild mercurous chloride (calomel), castor oil and colonic flushing. Alteration of the intestinal flora by *Bacillus acidophilus* implantation should next be attempted by ordering, every two hours, buttermilk or analogous preparations, with cream and seltzer water (equal parts) or milk permitted for variety; and possibly, if the patient is troubled with constipation, lactose. This period, lasting for two or three days, tests the patient's reaction to milk. If satisfactory improvement occurs, a strict diabetes diet without vegetables is next added to the milk diet; or, if milk disagrees, substituted for the milk diet. When the patient's condition has sufficiently improved, one may attempt gradual addition of moderate amounts of sugar, of easily digested starchy food such as toast, or mashed or baked potatoes, or vegetable purées.

So-called intestinal antiseptics deserve little confidence. They may, however, be employed if the patient requires medication for psychic reasons. A notable and relevant article is one entitled "Treatment of Nervous Indigestion," by Walter C. Alvarez, THE JOURNAL, August 6, page 440.

# Medical Education, Registration and Hospital Service

## COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Detroit, Sept. 12. Sec., Dr. W. H. Wilder, 122 S. Michigan Blvd., Chicago.

ARKANSAS: Little Rock, Nov. 8-9. Sec., Reg. Bd., Dr. J. W. Walker, Fayetteville; Sec., Eclec. Bd., Dr. C. E. Laws, Ft. Smith.

CALIFORNIA: San Francisco, Oct. 17-20. Sec., Dr. Chas. B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 4. Sec., Dr. Philip Work, 1011 Republic Bldg., Denver.

CONNECTICUT: New Haven, Sept. 13. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: State Board of Healing Arts, New Haven, Oct. 8. Prerequisite to examination. Chairman, Dr. Charles M. Bakewell, Box 1895, Yale Station, New Haven.

GEORGIA: Atlanta, Oct. 11. Sec., Dr. J. W. Palmer, Ailey.

IDAHO: Boise, Oct. 11. Commissioner of Law Enforcement, Hon. Fred E. Lukens, Boise.

ILLINOIS: Chicago, Oct. 4-6. Supt. of Regis., Mr. V. C. Michels, Springfield.

IOWA: Des Moines, Oct. 4-6. Dir. of Examinations and Licenses, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, Oct. 11. Sec., Dr. A. S. Ross, Sabetha.

MAINE: Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Dr. Frank M. Vaughan, 144 State St., Boston.

MICHIGAN: Lansing, Oct. 11-13. Sec., Dr. Guy L. Connor, 707 Stroh Bldg., Detroit.

MINNESOTA: Minneapolis, Oct. 18-19. Sec., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Oct. 17-19. Sec., Dr. James Stewart, Jefferson City.

MONTANA: Helena, Oct. 4-6. Sec., Dr. S. A. Cooney, Power Blk., Helena.

NEVADA: Carson City, Nov. 7. Sec., Dr. Edward E. Hamer, Carson City.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Chas. B. Kelley, 1101 Trenton Trust Bldg., Trenton.

NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. W. T. Joyner, Roswell.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 19-22. Chief Professional Examination Bureau, Mr. Herbert J. Hamilton, Albany.

OKLAHOMA: Oklahoma City, Sept. 13-14. Sec., Dr. J. M. Byrum, Shawnee.

SOUTH CAROLINA: Columbia, Nov. 8. Sec., Dr. A. Earle Boozer, 505 Saluda Ave, Columbia.

WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. G. M. Anderson, Cheyenne.

### Oklahoma June Examination

Dr. J. M. Byrum, secretary of the Oklahoma Board of Medical Examiners, reports the written examination held at Oklahoma City, June 14-15, 1927. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Forty-six candidates were examined, all of whom passed. Fourteen candidates were licensed by reciprocity and one by reregistration. The following colleges were represented:

| College | PASSED | Year Grad. | Number Passed |
|---|---|---|---|
| Northwestern University Medical School | | (1927)* | 1 |
| State University of Iowa College of Medicine | | (1926) | 1 |
| University of Louisville School of Medicine | | (1925) | 1 |
| Tulane University of Louisiana School of Medicine | | (1926) | 1 |
| Western Reserve University School of Medicine | | (1926) | 1 |
| University of Oklahoma School of Medicine | | (1927) | 40 |
| Baylor University College of Medicine | | (1927) | 1 |

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| University of Alabama School of Medicine | | (1908) | Alabama |
| University of Arkansas School of Medicine | | (1924), (1925) | Arkansas |
| Hahnemann Medical College and Hospital | | (1917) | Kansas |
| Northwestern University Medical School | | (1925) | Illinois |
| University of Louisville School of Medicine | | (1911) | Kentucky |
| Tulane University of Louisiana School of Medicine | | (1922) | Arkansas |
| College of Physicians and Surgeons, Baltimore | | (1910) | W. Virginia |
| Johns Hopkins University Medical Department | | (1920) | Tennessee |
| Mississippi Medical College, Meridian | | (1911) | Tennessee |
| Washington University School of Medicine | | (1924) | Missouri |
| Creighton University College of Medicine | | (1926) | Nebraska |
| Meharry Medical College | | (1892) | Texas |
| University of Tennessee College of Medicine | | (1914) | Mississippi |

* This candidate has completed his medical course and received his M.D. degree and will receive his license on completion of a year's internship in a hospital.

### Washington Licensure Report

Mr. George L. Berger, assistant director of the Washington Department of Licenses, reports the written examination held at Seattle, Jan. 11, 1927, at which one candidate was examined and passed, and also the reciprocity meeting held at Seattle, April 11, 1927, at which 14 candidates were licensed by reciprocity, one candidate was licensed on the basis of his diploma, and one on credentials from the National Board of Medical Examiners. The following colleges were represented:

| College | PASSED | Year Grad. | Per Cent |
|---|---|---|---|
| University of Manitoba Faculty of Medicine | | (1926) | 75 |

| College | LICENSED BY RECIPROCITY | Year Grad. | Reciprocity with |
|---|---|---|---|
| Bennett Medical College | | (1911) | Tennessee |
| Northwestern Univ. Med. School | | (1906) | Montana, (1910) Illinois |
| Rush Medical College | | (1915) | Illinois, (1916) Nebraska |
| State University of Iowa College of Medicine | | (1924) | Iowa |
| University of Kansas School of Medicine | | (1924) | Montana |
| University of Michigan Medical School | | (1899) | Montana |
| University of Minnesota Medical School | | (1891) | Minnesota |
| Creighton University College of Medicine | | (1908) | S. Dakota |
| University of Nebraska College of Medicine | | (1926) | Nebraska |
| Columbia University College of Phys. and Surgs. | | (1905) | Iowa |
| University of Oregon Medical School | | (1924) | Utah, (1925) Oregon |

| College | ENDORSEMENT OF CREDENTIALS | Year Grad. | Endorsement with |
|---|---|---|---|
| Columbia University College of Phys. and Surgs. | | (1924) | N. B. M. Ex. |

| College | LICENSED BY DIPLOMA | Year Grad. |
|---|---|---|
| University of Vermont College of Medicine | | (1891) |

# Book Notices

DENTAL MATERIA MEDICA AND THERAPEUTICS: With Special Reference to the Rational Application of Remedial Measures to Dental Diseases. A Textbook for Students and Practitioners. By Hermann Prinz, A.M., D.D.S., M.D., Professor of Materia Medica and Therapeutics, Thomas W. Evans Museum and Dental Institute School of Dentistry University of Pennsylvania. Sixth edition. Cloth. Price, $6. Pp. 632, with 146 illustrations. St. Louis: C. V. Mosby Company, 1926.

The author in the preface to his first edition says that his effort is calculated to show how pharmacologic research and clinical observations may be advantageously combined in the rational use of remedial agents in order to influence disease favorably. He treats the subject from the standpoint of the pharmacotherapeutist. The text is divided into four main parts. The first, devoted to general therapeutics, contains a concise statement of the development of therapeutics from its origin down to 1844, when Horace Wells introduced nitrous oxide as a general anesthetic. It also contains a comprehensive classification of dental remedies. In the first section of this classification the usual groups of antiseptics, astringents, caustics, hemostatics, counterirritants and antacids are listed. The second section outlines the drugs that act on specific organs, such as the mouth and teeth, the peripheral nerves and the central nervous system. The third section deals with physical therapeutics. Other interesting subjects considered are selection of remedies, prescription writing, incompatibilities, the Pharmacopeia and pharmaceutic preparations, and a synopsis of the national narcotic law. The second part covers the entire field of pharmacotherapeutics from the dentist's point of view. There is a fairly complete statement on essential oils, their derivatives and their synthetic substitutes; also a chapter on preparations for the mouth and teeth wherein references are made to the properties which an ideal oral preparation should possess and to many formulas of tooth powders and tooth pastes. The author deals with this phase of the subject in such a way as to make it highly profitable to students and practitioners in dentistry. Some other valuable considerations are the actions of drugs on metabolism, on secretions and on temperature. The conclusion of this division is devoted to a short discussion of organotherapy and serum therapy. The third part is a development of the third section of the foregoing classification. The subject of artificial hyperemia is ably treated. The treatment of disease by massage is referred to, together with the latest references to light therapy. The introduction of radium into dental therapeutics in 1912 by M. Levy of Berlin is mentioned and is followed by a discussion of the merits of the therapeutic action of radioactive substances in mouth washes, tooth pastes, injections and the drink cure. The application of heat and cold, with especial reference to poultices, is taken up in a general way. The concluding part of the work offers a study of local anesthesia. The history, the means of producing local

anesthesia, the physiologic action of anesthetics, the active principle of the suprarenal capsule and its synthetic substitutes, the preparation of the solution, hypodermic armamentarium, and the technic of injection both in infiltration and in conduction anesthesia are briefly yet sufficiently sketched. The volume is commended to those interested in the practice of dentistry in its broader aspect.

THE HEART AND ITS DISEASES. A Handbook for Students and Practitioners. By Charles W. Chapman, M.D., M.R.C.P., Consulting Physician to the National Hospital for Diseases of the Heart, London. Cloth. Price, $3.50. Pp. 216, with 52 illustrations. New York: William Wood & Company, 1927.

The author has attempted the impossible task of covering an immense field in a small volume and has succeeded only indifferently. There are a number of good points about the work, but they do not compensate for the inaccuracies that appear. Nor is there lack of opportunity to quarrel with many of the author's statements. On page 76, in a discussion of heart disease in children, it is stated that "an indiscretion in diet may lead to fatal consequences." This must be a rare occurrence. On page 90, the author refers to Paul Horder, New York, when he means Paul Hoeber. On page 117 the statement appears that "the changes in the heart in hyperthyroidism are dilatation of the right auricle and ventricle, and some little fatty change." It is doubtful whether this statement will bear critical investigation. On page 137 there is shown a tracing which is labeled paroxysmal ventricular tachycardia. Such a diagnosis could not be made from the tracing shown. On page 174, in a discussion of diuretics, "Novarsenol (100 cc.) intravenously or intramuscularly injected once a week has been reported upon favorably." Inquiry fails to disclose a therapeutic agent of this name. If the author has in mind novasurol (merbaphen), it is quite likely that the dose recommended would remove the necessity for any further treatment of any sort. The work is too inaccurate and omits too many important details to be of use to the general practitioner, and it contains too little material to interest the cardiologist.

ULCUSPROBLEM UND SÄUREBASENGLEICHGEWICHT. EINE KLINISCH-EXPERIMENTELLE STUDIE. Von Prof. Dr. Rudolf Bálint, o. ö. Universitäts-Professor, Direktor der I. med. Klinik der Pázmány-Peter-Universität in Budapest. Paper. Price, 10.40 marks. Pp. 204, with 18 illustrations. Berlin: S. Karger, 1927.

This volume, the combined work of many investigators at the clinic of Dr. Balint at Budapest, advances a new theory as to the cause and treatment of peptic ulcers.

In the first chapter Dr. Balint broaches three questions as to the production of peptic ulcers, the first, What produces the original defect of substance comprising the ulcer? He does not believe it can be ascribed to any one factor. The rôle of antipepsin is undecided. However, he does ascribe tremendous influence to nervous factors. Stimulation of the parasympathetic (vagus) with toxins or the galvanic current produces either a vessel spasm in the gastric wall or a gastric contracture with secondary compression of the vessels. He doubts the infectious origin asserted by Rosenow. The second question is, Why does an ulcer become chronic? He does not credit this to nervous influences. However, the physiologic structure and activity of the stomach and duodenum with the many narrowed and fixed points are, he agrees with Aschoff, the deciding factors. The third question, Are there certain individuals with an ulcer diathesis? he answers in the affirmative.

The second chapter is devoted to a discussion of the value of methods of determining the $p_H$ of the blood. He presents a new method perfected by Hollo and Weiss in his own clinic in which the principle depends on the comparison of a known strength phosphorus solution with 1:20 diluted plasma alkalized in the presence of neutral red or phenol red as an indicator.

In the third chapter is discussed the actual reaction of the blood and tissues in individuals with peptic ulcers. These individuals in the average show a decreased acidity of $p_H$ 0.04 below normal in the blood, and in the aggregate a majority of the cases below normal. An elaborate and complete series of experiments is presented giving the results of intravenous introduction of alkalis and acids into normal individuals and those with ulcers. These prove that ulcer-bearing individuals have a $p_H$ below normal and absorb alkali introduced. Their urine does not become alkaline easily. This state seems to be present in individuals who have had gastric resections. In the conclusion of this chapter, acid-base disturbances are divided into two types: the passive, such as occur in the introduction of acid or alkali in diabetic coma or pyloric obstruction, and the active type depending on changes in the breathing center with secondary variation in alveolar carbon dioxide reserve of the blood.

The fourth chapter gives the relation of the acid-base equilibrium to the pathogenesis of ulcer, as established by the author through an elaborate series of experiments on dogs.

The fifth chapter correlates the $p_H$ of the blood and the nervous system by a study of the effects of calcium and potassium on the vagus and sympathetic. The sixth chapter discusses the peptic ulcer clinically. Ulcer pain is not believed to be due to acid secretion, as pain occurs with anacidity and because remissions occur in the presence of large amounts of secretion.

While the author seems to write in a convincing manner, he presents only theory, which requires further proof. He advances proof by citing the relief of pain as it occurs in normal remissions, pregnancy, through the use of alkalis, foreign protein and roentgen-ray therapy, in which conditions the $p_H$ is increased. On the basis of this theory he uses some of the data obtained in the treatment of peptic ulcer.

GOITER AND OTHER DISEASES OF THE THYROID GLAND. By Arnold S. Jackson, M.D. Cloth. Price, $10. Pp. 401, with 151 illustrations. New York: Paul B. Hoeber, Inc., 1926.

This is based on the work done at the Jackson Clinic, on a careful study of the literature on the thyroid gland and observations of the surgeons at the Mayo Clinic during a period of more than three years spent by the author as a fellow in surgery in the Mayo Foundation at Rochester, and on observations at Crile's Clinic. The work is essentially a carefully organized presentation of the teachings and practice carried out in the Mayo Clinic. One of the objects of the book is to break down the old theory that the goiter of youth is merely a physiologic enlargement of the thyroid gland which will in time be spontaneously cured. The author hopes to correct this misconception and points out that many of these patients can be cured if their condition is correctly diagnosed and properly treated. He submits the simple classification of goiters as colloid, adenomatous (simple or toxic) and exophthalmic. He emphasizes the generally accepted fact that iodine should be administered as a preventive to all children between the ages of 8 and 20 who live in the goiter belt, and that iodine will not effect a cure in the presence of an adenomatous goiter regardless of its size; but if the patient is kept under close observation it may be given in small amounts, merely to retard the growth of the adenoma until the age of 21. The use of iodine in the prevention of goiter after the age of 21 is contraindicated because it is no longer of value as a preventive, it has no permanent effect in the treatment of colloid goiter, and iodine hyperthyroidism may be easily induced. He believes that the one exception to the rule that iodine should not be administered to adults is found in the treatment of exophthalmic goiter before and after operation, and believes that the diagnosis in these cases must be clearly established before the use of iodine is justified. He believes that the prevention and treatment of colloid goiter is a purely medical problem and involves a comprehensive system of organization throughout the goiter area; that adenomatous goiters should be considered as potential sources of hypertension, nephritis, myocarditis and malignancy, and as such should receive early surgical treatment. He believes, with most surgeons, that exophthalmic goiter is a surgical disease and that its successful treatment requires the close cooperation of the internist with the surgeon. He agrees with Plummer and as a student of Plummer's makes a sharp differentiation between the symptom of exophthalmic goiter and that of toxic adenoma of the thyroid, a distinction which today is beginning to be doubted by many surgeons. The more recent idea is that the two are merely types of the same disease and not essentially different entities. The work of Rienhoff in this connection certainly has much to substantiate this view. A considerable amount of space is devoted to the

study of basal metabolism in thyroid disease. Similarly, the author considers iodine hyperthyroidism of paramount importance and endeavors to establish the syndrome of this condition as a clinical entity and emphasizes its prevalence in treatment. One chapter is devoted to malignancy, thyroiditis, tuberculosis and syphilis of the thyroid gland. The book ends with a consideration of the preoperative treatment of goiter patients, local anesthesia in thyroid surgery, the surgical treatment of toxic goiter, operative complications, and postoperative treatment. The final chapter deals with mortality, and postoperative results in goiter surgery. Many statistics are quoted and there is an extensive bibliography. While not adding much that is new, the book supplies in an orderly manner a clear idea of the present status of goiter surgery, particularly from the standpoint of the Mayo Clinic.

THE TREATMENT OF THE ACUTE ABDOMEN: Operative and Post-Operative. By Zachary Cope, B.A., M.D., M.S., Senior Surgeon to Out-Patients, St. Mary's Hospital, Paddington. Cloth. Price, $3.50. Pp. 238, with 146 illustrations. New York: Oxford University Press, 1926.

The surgeon who undertakes to cover acute conditions of the abdomen in two hundred pages has taken on "a large order." This book is intended, primarily, as a manual "to help those doctors . . . who may be called in an emergency to operate in an acute abdominal condition. The author disclaims any purpose of encouraging any inexperienced practitioner to operate when an expert . . . is within reasonable distance." The usual acute diseases are discussed. These are appendicitis, perforated ulcer, pancreatitis, obstruction, injuries and general peritonitis. The subject matter is written in a most pleasing style. If brief, the author is also systematic and shows excellent judgment in both diagnosis and treatment. Because of these characteristics, this book is an excellent reference work for the undergraduate student.

LA SYPHILIS NERVEUSE: Etiologie.—Pathogénie.—Prophylaxie.—Traitement. Études cliniques et biologiques. Par A. Sézary, médecin de l'hôpital Broca. Paper. Price, 80 cents. Pp. 208, with illustrations. Paris: Masson et Cie, 1926.

Treatment of the late forms of parenchymatous syphilis of the nervous system has so far proved disappointing, even though it has seemed possible to secure remissions and possibly even arrest of the disease. Consequently, the main hope still lies in prevention. In this book Sézary reviews the frequency, etiology and time of invasion of the nervous system, his conclusions being founded largely on the results of his own observations. He asserts that a meningeal inflammation occurs in from one half to two thirds of all cases of syphilitic infection, though he also concludes that the invasion of the parenchyma is primary and not secondary to a meningitis and that it takes place during the septicemic phase of the disease. This should be sufficient to indicate the importance of examining the spinal fluid and studying every patient for signs of nervous involvement; the most opportune time for making the spinal puncture and the changes that occur in the spinal fluid even in the absence of therapy are discussed in a decidedly helpful way. Much space is also devoted to the topic of methods of treatment, and the author gives the results of his own extensive experience. It is interesting to note that, in the treatment of general paralysis, he recommends stovarsol (a brand of acetarsone-N. N. R.), a French pentavalent arsenic, which he prefers to tryparsamide; it contains approximately the same amount of arsenic as the latter and like it has only feeble spirocheticidal properties. The book is thoroughly worth while and can be recommended not only to the neurologist but also to the syphilologist.

DISEASES OF THE DIGESTIVE ORGANS WITH SPECIAL REFERENCE TO THEIR DIAGNOSIS AND TREATMENT. By Charles D. Aaron, Sc.D., M.D., F.A.C.P., Professor of Gastro-Enterology and Dietetics in the Detroit College of Medicine and Surgery. Fourth edition. Cloth. Price, $11. Pp. 927, with 257 illustrations. Philadelphia: Lea & Febiger, 1927.

The fourth edition of this excellent textbook has much added new material including several entirely new chapters. The subject is broadly handled and all phases of internal medicine are considered in their relation to diseases of the gastro-intestinal tract. The laboratory, clinical and roentgen-ray findings are thoroughly correlated, and the surgical aspect is given due consideration. The illustrations are liberal and helpful. The chapter on the roentgen ray, including the visualization of the gallbladder, covers the subject completely. The dietetic and medicinal treatment outlined is rational, and included in the treatment is a thorough consideration of all forms of hydrotherapy.

CLINICAL PHYSIOLOGY (A Symptom Analysis). In relation to Modern Diagnosis and Treatment. A Text for Practitioners and Senior Students of Medicine. By Robert John Stewart McDowall, D.Sc., M.D., F.R.C.P., Professor of Physiology, King's College, University of London. With an introduction by W. D. Halliburton, LL.D., F.R.C.P., F.R.S. Cloth. Price, $7. Pp. 383, with illustrations. New York: D. Appleton & Company, 1927.

Here is a textbook for practitioners and senior students in which the clinical aspects of physiology are emphasized. It gives an excellent account of the normal physiology and also of the physiologic changes that take place in disease so far as they are understood. Until pathologic physiology takes a place corresponding to that now held by pathologic anatomy, this part of the subject cannot be treated as adequately as can the normal. The physiology of the nervous system is first taken up at some length. Chapters on the cardiovascular system and respiration are followed by an able discussion of digestion and nutrition. The chapter on blood sugar and pancreatic efficiency, which is rather brief, is followed by sections on the formation and excretion of bile and urine, on the maintenance of body neutrality and its water content and temperature, exercise and rest, the protection of the body against disease, the skin, the autonomic nervous system and the endocrine glands. In conclusion, there is an interesting chapter on physiologic principles in the treatment of emergencies, especially with reference to the accidents of the circulatory and respiratory systems. An excellent bibliography is appended. The book covers the subject of clinical physiology quite adequately without being weighted down with details of experimental work or prolonged discussions of the theoretical aspects. A physiologist might consider it too sketchy and didactic for this reason. However, to the practitioner who wishes to keep up with the progress of medical science, it gives clinical physiology as most generally accepted today. It is unusual to find a book, especially a textbook, that contains so much of real value, so readable.

DIE AKUTEN EITRIGEN INFEKTIONEN IN DER CHIRURGIE UND IHRE BEHANDLUNG. Von Dr. med. Arthur Buzello, Privatdozent und Assistent an der chirurgischen Klinik und Poliklinik in Greifswald. Paper. Price, 30 marks. Pp. 495, with 175 illustrations. Berlin: Urban & Schwarzenberg, 1926.

This is presented as an aid to clinical instruction in university teaching, as well as to help the general practitioner. The author has produced a work which is essentially practical and emphasizes good, rational and tested methods, not only of the more recent advances, but also those of the older methods which have proved valuable. He properly evaluates the more modern methods, such as protein therapy, vaccine therapy, chemotherapy and roentgen-ray therapy, as auxiliary methods of treatment. He first takes up the subject of infections in general, discussing etiology, local reaction at the site of infection, general disturbances of the body as a result of infection, resistance to infection, and pyogenic bacteria, including their special bacteriology, special methods of treatment of purulent infections, and treatment by means of protein therapy. The second portion of the book is devoted to infected wounds and their treatment, acute purulent infections of the skin and subcutaneous tissue, felons, acute suppurative infections of bones and joints, bursae, lymphatics and lymph glands, connective and fat tissue, parenchymatous organs, mucous membranes, blood vessels, endothelial lined cavities, decubitus ulcers, tetanus, anthrax and noma. The remainder of the volume deals with septic general infections, including blood infections, mixed forms, the diagnosis of the various blood infections, their treatment, both general and specific, and a discussion of infections caused by the several pyogenic organisms. The author bases his views on experience gained in the Greifswald clinic; his judgment is sane and sound, and the book can be recommended as a helpful guide for practitioners whose experience along these lines has been limited. The work is well illustrated, and the arrangement of the material and the well organized index make it easy to find the detailed information desired.

# Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

STANDARD METHODS OF THE DIVISION OF LABORATORIES AND RESEARCH OF THE NEW YORK STATE DEPARTMENT OF HEALTH. General Laboratory Procedures and the Methods Used in the Department for the Preparation of Media and Glassware, the Laboratories for Sanitary and Analytical Chemistry, the Research, Publications, and Library Department, the Antitoxin, Serum, and Vaccine Laboratories, the Diagnostic Laboratories, the Executive Offices. Augustus B. Wadsworth, M.D., Director. Cloth. Price, $7.50. Pp. 704, with illustrations. Baltimore: Williams & Wilkins Company, 1927.

Complete guide to numerous laboratory procedures as carried out practically from day to day in a state laboratory.

INSURABILITY, PROGNOSIS AND SELECTION. LIFE, HEALTH, ACCIDENT. A Treatise on Various Factors That Permit a Forecast of Health and Longevity, Selection of Risk for Insurance Appraisal of Claim for Indemnity. By H. W. Dingman, M.D., Vice-President Continental Assurance Company. Cloth. Price, $15. Pp. 706. Chicago: Spectator Company, 1927.

A vast amount of data on the factors concerned in selecting a good life insurance risk.

THE NEW PHYSICAL EDUCATION. A Program of Naturalized Activities for Education Toward Citizenship. By Thomas Denison Wood, A.M., M.D., Professor of Physical Education, Teachers College, Columbia University, and Rosalind Frances Cassidy, A.M., Professor of Physical Education, Mills College. Cloth. Price, $2.40. Pp. 457. New York: Macmillan Company, 1927.

Another textbook outline correlated with others from the prolific Wood's workshop.

HYPNOSIS. By Prof. Paul Schilder, M.D., Ph.D., and Dr. Otto Kauders, Assistant of the Psychiatric Clinic, Vienna. Translated by Simon Rothenberg, M.D., Attending Neurologist, the Jewish and Israel-Zion Hospitals, Brooklyn, N. Y. Nervous and Mental Disease Monograph Series No. 46. Cloth. Price, $2.50. Pp. 118. New York: Nervous and Mental Disease Publishing Company, 1927.

Excellent monograph revealing medical aspects of this psychologic method.

A TEXT-BOOK OF PSYCHIATRY FOR STUDENTS AND PRACTITIONERS. By D. K. Henderson, M.D., F.R.F.P.S., Physician-Superintendent, the Glasgow Royal Mental Hospital, and R. D. Gillespie, M.D., D.P.M., Physician for Psychological Medicine, Guy's Hospital, London. Cloth. Price, $5.50. Pp. 520. London: Oxford University Press, 1927.

A psychiatric textbook replete with cases and with reference to social considerations.

HOST-PARASITE RELATIONS BETWEEN MAN AND HIS INTESTINAL PROTOZOA. By Robert Hegner, Ph.D., Professor of Protozoölogy in the School of Hygiene and Public Health of the Johns Hopkins University. Cloth. Price, $3.50. Pp. 231, with illustrations. New York: Century Company, 1927.

Well printed consideration of intestinal parasites that disturb mankind.

HYPOTENSION. By Alfred Friedlander, Professor of Medicine, College of Medicine, University of Cincinnati. Medicine Monographs Volume XIII. Cloth. Price, $2.50. Pp. 193. Baltimore: Williams & Wilkins Company, 1927.

Practical monograph reviewing literature and with good advice on care and treatment of patients with hypotension.

THE BLOOD VESSELS OF THE HUMAN SKIN AND THEIR RESPONSES. By Thomas Lewis, M.D., F.R.S., Physician of the Staff of the Medical Research Council. Cloth. Pp. 322, with 76 illustrations. London: Shaw & Sons, Ltd., 1927.

A physiologic consideration of the mechanism of the response of the skin to various stimuli.

THERAPEUTIC MALARIA. By G. de M. Rudolf, M.R.C.S., L.R.C.P., D.P.H., Assistant Medical Officer, Claybury Mental Hospital, London County Mental Hospitals Service. Cloth. Price, $3.85. Pp. 223, with illustrations. London: Oxford University Press, 1927.

Monograph reviewing literature and reporting results of malarial treatment of neurosyphilis.

THE NATURE OF DISEASE. Part II. By J. E. R. McDonagh, F.R.C.S. Cloth. Price, 21 shillings net. Pp. 434. London: William Heinemann, Ltd., 1927.

NORMAL MIDWIFERY FOR MIDWIVES AND NURSES. By G. W. Theobald, B.A., M.D., Professor of Obstetrics and Gynæcology in the Chulalankarana University, Bangkok. Cloth. Price, $3.15. Pp. 258, with 58 illustrations. London: Oxford University Press, 1927.

Well printed guide based on technic of the Rotunda Hospital in Ireland.

JOSEPH BARON LISTER: Centenary Volume. 1827-1927. Edited for the Lister Centenary Committee of the British Medical Association. By A. Logan Turner, M.D., LL.D. Cloth. Price, 10/6 net. Pp. 182, with illustrations. Edinburgh: Oliver & Boyd, 1927.

Beautifully prepared memorial volume to a great surgeon and practitioner.

DISEASES OF THE NEWBORN. A Textbook for Students and Practitioners. By James Burnet, M.A., M.D., F.R.C.P., Lecturer on Diseases of Children, School of Medicine of the Royal Colleges, Edinburgh. Cloth. Price, $1.85. Pp. 275. London: Oxford University Press, 1927.

Handbook of incomplete considerations of little value to the practitioner.

PERSONAL HYGIENE FOR WOMEN. By Clelia Duel Mosher, M.A., M.D., Associate Professor of Personal Hygiene and Medical Adviser of Women, Stanford University. Cloth. Price, $1.50. Pp. 97. Stanford University: Stanford University Press, 1927.

New and revised edition of a most helpful guide to hygiene for women.

THE EXPERIMENTAL STUDY OF RAT-BITE FEVER IN RABBITS. By Masakoto Abe. Monographiae Actorum Dermatologicorum, B. Series Syphilidologica No. 2. Paper. Pp. 165, with 24 illustrations. Tokyo, 1927.

Experimental investigation with interesting sidelights on syphilis.

KER'S MANUAL OF FEVERS. Revised by Claude Rundle, O.B.E., M.D., M.R.C.S., Medical Superintendent, City Hospitals and Sanatorium, Fazakerly, Liverpool. Third edition. Cloth. Price, $3.75. Pp. 346, with illustrations. London: Oxford University Press, 1927.

Revised edition of helpful book though not quite up to date.

THE THOMAS SPLINT AND ITS MODIFICATIONS IN THE TREATMENT OF FRACTURES. By Meurice Sinclair, C.M.G., M.B., Ch.B. With a foreword by Sir Robert Jones, K.B.E., C.B., F.R.C.S. Cloth. Price, $4.50. Pp. 168, with illustrations. London: Oxford University Press, 1927.

Monograph with special reference to war experience.

A LAYMAN'S HANDBOOK OF MEDICINE. With Special Reference to Social Workers. By Richard C. Cabot, M.D. Cloth. Price, $1.50. Pp. 528, with illustrations. Boston: Houghton Mifflin Company, 1916.

Unrevised reprint of a book so old as to be obsolete.

THE SKIN: ITS CARE AND TREATMENT. By Albert Strickler, M.D., Professor of Dermatology and Syphilology, Temple University Medical School. Cloth. Price, $1.50. Pp. 194. New York: D. Appleton & Company, 1927.

Simple guide to the care of the skin and hair.

KOLLOIDCHEMIE DER WASSERBINDUNG. Eine kritische und experimentelle Untersuchung der Wasserbindung in Kolloiden und ihrer Beziehungen zu den Problemen der Wasserbindung in Physiologie, Medizin und Technik. Von Martin H. Fischer, Doktor der Medizin und Pharmazie an der Universität Cincinnati. Band I. Wasserbindung in Ödemen. Second German edition from the third American edition edited by Katharina Popp. Paper. Pp. 376, with 142 illustrations. Dresden: Theodor Steinkopff, 1927.

HANDBOOK OF SCIENTIFIC AND TECHNICAL SOCIETIES AND INSTITUTIONS OF THE UNITED STATES AND CANADA. American Section compiled by Clarence J. West and Callie Hull for the Research Information Service, National Research Council, United States. Canadian Section compiled by National Research Council, Canada. Bulletin of the National Research Council. No. 58. May, 1927. Paper. Price, $3.50. Pp. 304. Washington: National Research Council of the National Academy of Sciences, 1927.

RESEARCHES IN POLYNESIA AND MELANESIA. An Account of Investigations in Samoa, Tonga, the Ellice Group, and the New Hebrides, in 1924 and 1925. Parts I-IV. (Relating Principally to Medical Entomology.) By Patrick A. Buxton, M.R.C.S., D.T.M. & H., and G. H. E. Hopkins, M.A., F.E.S. Cloth. Price, 10/6. Pp. 260, with illustrations. London: London School of Hygiene and Tropical Medicine, 1927.

THE HISTORY OF PLAGUE IN AUSTRALIA, 1900-1925. By J. H. L. Cumpston, M.D., D.P.H., Director-General of Health and Director of Quarantine, and F. McCallum, M.B., B.S., D.P.H., Quarantine Officer, Commonwealth Department of Health. Department of Health of the Commonwealth of Australia. Service Publication No. 32. Paper. Pp. 238. Melbourne: H. J. Green, 1926.

THE SANITARY CODE OF THE STATE OF CONNECTICUT. Paper. Pp. 82. Hartford, 1927.

# Medicolegal

### Not an "Unusual Case"

*(Hooey's Case (Mass.), 155 N. E. R. 419)*

The Supreme Judicial Court of Massachusetts says that this was a proceeding under the workmen's compensation act by which the attending physician sought to recover for medical services to the employee after the two weeks' statutory period provided in sections 13 and 30 of chapter 152 of the general laws. The industrial accident board found that, on April 15, 1925, the employee was struck on the head by a brick which fell from the fourth story of the building where he was employed, and that he suffered a concussion of the brain and a cut on the right side of his head which required seven stitches. He remained in a hospital for fifteen days. Thereafter he suffered headaches and dizziness and pains in his limbs and neck, which, the physician testified, were due to the injury. After the expiration of the period of two weeks, the physician continued at different times to treat him until March, 1926. The board found that a reasonable charge for such services was $92. The treatment was given at the physician's office and consisted of bathing, massage and sedatives. The board found that this was an unusual case under section 30, and a decree was entered ordering the insurer to pay the employee $92 for such medical attention, with interest from that date. The insurer appealed.

The question before this court was whether this was an unusual case within the meaning of the statute. The distinction between "unusual cases" in the statute, and usual or ordinary cases, is not easy to define. It has been held, however, that the nature of the injury is of importance in deciding whether the case is or is not unusual; that cases requiring major operations, spinal injuries calling for expensive special apparatus, and serious injuries to the eye or brain demanding the services of specialists would ordinarily be considered as unusual. This court has held that the injuries may be unusual in the sense that they do not occur under ordinary circumstances, or that recovery is prolonged. But such facts do not make them unusual cases as the words are used in the statute.

Although the employee in the present case was seriously injured, there was nothing to show that any unusual or special medical treatment was required or administered. The treatment followed by the physician would seem to have been simple, with no complications or unusual developments. In these circumstances it was not an unusual case. It followed that the decree must be reversed and a decree entered in favor of the insurer.

### Failure to Call as Witnesses Certain Physicians

*(Merrill v. St. Paul City Ry. Co. et al. (Minn.), 212 N. W. R. 533)*

The Supreme Court of Minnesota holds that, in a personal injury action, the plaintiff's failure to call as witnesses the physicians who first attended him does not entitle the defendant to an instruction that such failure permits the jury to indulge in the presumption that their testimony would have been unfavorable to the plaintiff. The court says that an instruction of this character as to nonexpert witnesses who may be under the control of a party may be given in the discretion of the trial court. Such an instruction should be given only after the exercise of caution. The supreme court of Michigan has announced the rule substantially as warranting such an instruction as the one rejected in this case, but the supreme court of Minnesota is not disposed to adopt that rule.

Many physicians are called to attend injured persons in the first instance from necessity, and with no opportunity for choice. The relation of physician and patient is delicate. Embarrassment sometimes follows a change of physicians. The physician first called may not have the same opinion as to diagnosis or treatment as some other physician. The patient makes his own choice as to whose opinion or judgment he will follow. Because one physician commands large compensation for expert testimony, a patient may find it necessary to get along with one whose charges are more moderate. It is also well known that some physicians abhor the courtroom and the witness stand. A physician is not in the control of the patient who is a litigant. Any litigant should have the right to choose his experts. He has to pay them. Because physicians disagree, should he be required to furnish expert testimony of each, or be subjected to an unfavorable presumption in the eye of the jury? If the physician is to be forced on the plaintiff as to the mere facts, why not every eyewitness to the accident? True, the privileged character of the witness may prevent the other side calling him. But they will not anyway, if he maintains that silence which the proprieties of his profession dictate. Nor would the ordinary physician desire to become a witness against his patient.

In this age, when the family physician with his helpful personal contact is disappearing, and many physicians are members of clinics, it is not always possible to have the services of the particular physician one may desire. The organization assigns the patient to an expert of its own choice, and doubtless feels that it is giving service. And why not? If the patient has the attention of a number of physicians of the same clinic, under the rule contended for, each must be called, or the requested instruction be invoked.

Under the Minnesota practice a litigant is given an opportunity to examine an injured plaintiff. Without a direct instruction from the court relative to such absent witnesses, the defendant's advocate has an opportunity to make an effective argument to the jury concerning such failure of the plaintiff. Ordinarily, the permissible argument to the jury would be more favorable to the defendant than to have such witnesses called. An instruction to the jury involving presumptions is frequently more harmful than helpful. It should be given only when the facts and circumstances demand it.

### Alleged Tight Bandaging and Gas Bacillus Gangrene

*(Wiley v. Wigg (Okla.), 254 Pac. R. 22)*

The Supreme Court of Oklahoma, in reversing a judgment for $10,000 damages which was rendered in favor of plaintiff Wigg, says that it appeared that on a Sunday the plaintiff's left leg was fractured just below the knee. He was immediately removed to a hospital and about three quarters of an hour after his arrival there the defendant set the leg and enclosed it in a wire splint, padded with cotton, from the heel to about six inches above the knee, wrapping the splint firmly with a cloth bandage. The next day the plaintiff was removed to another hospital, and thereafter the defendant treated him, visiting him two or three times a day until the following Saturday. On Saturday afternoon the defendant went to visit a sick relative in a distant state, leaving the plaintiff in charge of two physicians, who, with another physician, examined the plaintiff immediately, and, after a consultation which occurred in the evening, decided that an amputation of the plaintiff's leg would be necessary to save his life. The examination made by these physicians before the amputation disclosed an infection in the leg which they designated as gas bacillus infection. The primary act of negligence charged by the plaintiff in his petition and relied on by him, as a basis for a recovery, was that the defendant in reducing the fracture wrapped the bandage too tightly, thereby cutting off the circulation and causing gangrene to develop, making it necessary to amputate the leg.

The plaintiff produced one witness, a physician, who testified that the trouble from which the plaintiff lost his leg was due to pressure from the outside; that the discoloration appearing in the leg could only have been produced by pressure, from which it must be inferred that the bandage was too tight. No witness testified that the splint in which the leg was enclosed was wrapped too tightly, nor was any direct evidence offered by which the jury was enabled to determine this matter. To say that, because there was evidence that the discoloration in the leg was due to pressure, this pressure could have been produced only by a tight bandage, in the absence of any direct testimony that the bandage itself was too tight, would be to authorize the jury to base its finding on mere conjecture or speculation.

It was argued that the discoloration and the blisters found on the plaintiff's leg, on Wednesday following the reduction of the fracture, indicated that the blood supply was being cut off by too tight wrapping of the bandage; but, from the record presented, it appeared that the blood supply could be cut off from the injured member by a tearing of the blood vessels in the muscular tissue in the region of the break, resulting in practically the same discoloration or resulting in the appearance of the same evidence of a lack of proper blood supply. Therefore the jury, if it should be correct in its conjecture that the bandage was too tight, would still be required to conjecture or guess that the lack of blood in the leg was caused by the tight bandage, rather than from an obstruction in the circulation due to a laceration or injury to the blood vessels in the region of the fracture. Obviously, then, it was not a necessary conclusion that the bandage was too tight, or that, if it was too tight, it necessarily produced the discoloration and blisters appearing on the plaintiff's leg on Wednesday following the reduction of the fracture. There being no competent evidence from which the jury could legitimately conclude that the discoloration was caused by a too tight bandaging of the leg, it must follow that this discoloration arose from some cause for which the defendant was not responsible. A plaintiff cannot recover where it is merely a matter of conjecture, surmise, speculation or suspicion whether an injury was or was not due to the alleged negligence of the defendant.

It is elementary that the mere happening of an accident or the mere occurrence of an injury raises no presumption of negligence, but that negligence must be proved. The fact that the defendant did not appreciate the probability that gas bacillus gangrene or moist gangrene might develop from the discolored condition of the leg, rendering the amputation of the leg imperative, and in not treating the leg accordingly, did not amount to a want of ordinary care and attention such as to render him liable under the rule established in Oklahoma. At most, it would indicate a mere mistake or error of judgment in a matter of reasonable doubt or uncertainty. In an action against a physician for malpractice in the setting and treatment of a fractured limb, where there is no guaranty of cure or contract for extraordinary skill or care, he is not presumed to engage for extraordinary skill or for extraordinary care, nor can he be made responsible in damages for errors in judgment and mere mistakes in matters of reasonable doubt or uncertainty.

The court denied two petitions for a rehearing.

### A Competent Witness Although Not an Eye Specialist

*(Crawford et al. v. American Stores Co. (N. J.), 136 Atl. R. 715)*

The Supreme Court of New Jersey disposes in a very few words of the contention in this action to recover damages for personal injuries that error was committed by permitting a medical man to testify as an eye expert in view of his own statement that he was not an eye specialist. The court says that the testimony objected to was competent. While the witness was not an eye specialist, he was duly licensed to practice medicine and presumably qualified to speak with respect to the entire anatomy of the body.

### Actions Barred by Two-Year Statute of Limitations

*(Tabolsky v. Crandon (Mass.), 155 N. E. R. 657)*

The Supreme Judicial Court of Massachusetts, in overruling exceptions to findings for the defendant, says that the two cases here considered together were actions of tort to recover compensation for an alleged malpractice of the defendant, a surgeon, who admittedly performed an operation on the female plaintiff. It was provided by chapter 319, statutes of 1921, that "actions of contract or tort for malpractice, error or mistake, against physicians, surgeons, . . . shall be commenced only within two years next after the cause of action accrues." This act took effect, Jan. 1, 1922. It was operative on all causes of action then existing as well as those thereafter arising. The present action was not begun until more than two years after the wrongful conduct of which complaint was made. There was no ground in the evidence for finding that the defendant was guilty of any fraudulent concealment whereby the effect of the statute of limitations could be avoided. A cause of action cannot be said to be concealed from one who has a personal knowledge of the facts that create it.

### Exposure of Weakened Heart to High Altitude

*(Knock et al. v. Industrial Acc. Commission et al. (Calif.), 253 Pac. R. 712)*

The Supreme Court of California, in annulling an award of the industrial accident commission denying the petitioners compensation under the workmen's compensation act for the death of an employee of a ranch company, says that the employee was sent to a region about 3,300 feet above sea level. The investigation of land which he was there to make required him to walk over peat lands for a distance of some miles. The walking was difficult and laborious, at times over rough country, and at other times going through deep mud and water, or requiring jumping over small sloughs. After walking rapidly at first for some distance, he began lagging behind his companion and complained of feeling unwell. His death occurred about two days later. On the hearing before the commission it was shown in evidence that prior to taking that trip he had been to all appearances an unusually healthy and active man and that if he had any heart trouble prior thereto that fact was unknown to himself, his friends and his family. The court is of the opinion that the commission, on the undisputed evidence presented before it, was correct in its findings that his death was caused by acute dilatation of the heart, and that "said heart condition was due to a previous diseased condition being precipitated by the employee's situation in a higher altitude than that to which he had long been accustomed." But the court is also of the opinion that the commission was in error in its conclusion that "such situation and precipitation did not constitute an injury arising out of the employment." The further statement of the commission that "exposure to a high altitude of a weakened heart does not constitute an industrial injury" must be read and understood in connection with the undisputed evidence in the case, which showed that such exposure was connected with a marked degree of overexertion at such high altitude, and that such overexertion was immediately attendant on the employment and occupation in which the employee was engaged at the time of his attack with the heart trouble. The statement of the commission that "exposure to a high altitude of a weakened heart does not constitute an industrial injury" may be conceded to be true; but when such exposure is directly attended with an overexertion on the part of the employee, which the undisputed evidence showed and which the findings when reasonably interpreted disclosed, the case was taken out of the rule, and became an industrial injury.

### Physicians Permitted to Testify in Criminal Cases

*(State v. Dean (Utah), 254 Pac. R. 142)*

The Supreme Court of Utah says that in this case, in which the defendant was charged with having committed the crime of rape on a girl 10 years of age, the girl was found to have gonorrhea. After the defendant had been arrested and released on bail, the sheriff asked him to go to the county physician and be examined. He voluntarily went to the physician's office and consented to the examination. The physician was called by the state and gave his testimony over the objections of the defendant. He testified that he found that the latter had chronic gonorrhea which had existed for a long time, but in a very mild form; that is, that most of the evidences of it had disappeared, but there was a slight amount of discharge.

The defendant contended that, by reason of the Utah statute (subdivision 4 of section 7124 of compiled laws of 1917), the witness was incompetent, and that the information acquired by him was privileged. The statute provides that a physician or surgeon cannot without the consent of his patient be examined in a civil action as to any information acquired in attending the patient, which was necessary to enable him to prescribe for the patient. The complaint of the ruling in this case was unfounded because: (1) No

relation of physician and patient was shown; (2) the information was not acquired in attending the defendant as a patient, nor to enable the physician to prescribe or act for him or to treat him, nor did the physician treat or undertake to treat him; (3) the action in which the physician was called to give testimony was a criminal and not a civil action.

To overcome the last of the stated reasons, the defendant pointed to another statute (sections 9275, 9276), which provides that the rules determining the competence of witnesses and of evidence in civil actions are applicable to criminal actions, except as otherwise provided in the code of criminal procedure. These sections did not help the defendant. Under the common law a physician called to testify as a witness was competent to disclose any information required by, or communicated to, him in the course of his attendance on, or treatment of, his patient in a professional capacity, nor could the physician refuse to give, nor the patient by objection exclude, such testimony. On the conditions therein stated, the statute in civil actions renders the physician incompetent to give testimony, unless the consent of his patient is had. The common law as to the competence of a physician to give testimony is not otherwise restricted. The common law, except as otherwise modified by statute, is in force in Utah.

California has the same statute (sections 1102, 1321, Kerr's Cyc. Codes), corresponding with sections 9275, 9276 of the Utah statute. It likewise has a statute (section 1881, C. Civ. P.) like that of Utah, that a physician, without the consent of his patient, may not in a civil action give testimony, on conditions in the statute stated, which, so far as here involved, in all respects are like the Utah statute. Under such statute the California court, in *People* v. *Lange*, 101 Calif. 513, 36 Pac. 16, and *People* v. *West*, 106 Calif. 89, 39 Pac. 207, has held that the rule as to privileged communications between a patient and physician does not apply in criminal cases, and that a physician or surgeon may be examined in a criminal action as to information acquired in attending patients, and that the rule as to such privileged communications applies only in civil actions. Adopting, as the supreme court of Utah does, such holdings, no error was committed in permitting the physician to testify in this case.

### Uncle of Patient Held Not Liable for Fee

*(Naffziger v. Illbeg (Calif.), 254 Pac. R. 276)*

The District Court of Appeal of California, first district, division 1, in affirming a judgment in favor of the defendant, says that a nephew of the defendant came to consult the plaintiff and be treated for a tumor. It was discovered that an immediate operation was necessary. The plaintiff first performed a decompression operation, and afterward a major operation. The patient, who subsequently died, was accompanied by his brother. The plaintiff discussed with them the question of the payment of his fees, and was assured by them that they were responsible, but that their uncle would pay the fees, the plaintiff being cautioned not to mention to their uncle that they had used his name. The patient procured the services of a private nurse, who, at his request, wrote to the uncle, but neither she nor the uncle could remember the particular language used. The defendant testified that he considered it a mere request to obtain his consent as a relative of the patient to the serious operation contemplated. In answer, he wrote to the plaintiff that he had received a letter from the nurse, "who advised that you are waiting to hear from me. If an operation is necessary, please have it done right away." Prior to his death, the patient had paid the plaintiff $500 on account of his services. It appeared that the uncle had had in his hands funds belonging to the patient to the amount of about $1,500, which had led the brothers to assure the plaintiff that they were responsible as their uncle would send the money; but he advanced the entire amount to his nephew during his illness for the purpose of paying his bills. The plaintiff sued the uncle to recover a balance of $1,000 claimed to be due for the professional services rendered. The uncle pleaded as a defense the statute of frauds, contending that the action was an attempt to hold him for the debt of another, without a memorandum in writing, while the plaintiff contended that the letter written by the nurse was for an assurance as to the payment of the plaintiff's fee, and that the defendant's letter in reply constituted a request for the operation, which made him an original obligor.

As already indicated, it was the defendant's contention that the letter written by the nurse was for the sole purpose of obtaining his consent to the serious operation, he being a close relative of the patient, and that his reply thereto did not constitute a request for the operation, nor did it contain a promise to pay any sum whatever; that he at no time ever agreed to become liable for the services rendered. In support of this contention, he introduced evidence to show that constant demand was made by the plaintiff on his nephews to pay, but no demand was ever made on him; that the only instance in which the matter was brought to his attention was on the occasion immediately following the operation, when he received a letter from the plaintiff advising him of his nephew's condition. This letter, in concluding, advised the defendant that the brother of the patient had promised to attend to the settlement of his brother's account, and requested that the defendant see him, and have him communicate with the plaintiff concerning it. It was insisted that this letter clearly evidenced the fact that the plaintiff did not consider the defendant liable. Other letters written by the plaintiff to the brothers and their replies thereto showed that the plaintiff was looking to them for payment. In one of these letters the plaintiff agreed to accept the sum of $750 in full for his services if the amount was paid at once. Under all these circumstances, this court is of the opinion that the question presented to the trial court was one of fact, and that the case was one which presented a conflict of evidence; that the decision of the trial court in favor of the defendant being amply supported by evidence, the judgment should be affirmed.

## *Society Proceedings*

### COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Detroit, September 12-16. Dr. W. P. Wherry, Bankers Reserve Life Building, Omaha, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Asheville, N. C., September 15-17. Dr. J. E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Association of Railway Surgeons, Chicago, November 2-4. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American Electrotherapeutic Association, New York, September 12-16. Dr. Richard Kovacs, 223 East Sixty-Eighth Street, New York, Secretary.

American Hospital Association, Minneapolis, Oct. 10-14. Dr. William H. Welch, 19 East Division Street, Chicago, Executive Secretary.

American Public Health Association, Cincinnati, Oct. 17-20. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, Montreal, Canada, September 20-23. Dr. C. L. Martin, Baylor Hospital, Dallas, Texas, Secretary.

American Society of Tropical Medicine, Boston, October 21-22. Dr. B. Schwartz, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

Association of American Medical Colleges, Montreal, October 24-26. Dr. F. C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pennsylvania, October 6-8. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Cleveland, Oct. 14-15. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Secretary.

Delaware State Medical Society, Farnhurst, Oct. 11-12. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Indianapolis, September 28-30. Mr. T. A. Hendricks, Hume-Mansur Building, Indianapolis, Executive Secretary.

Inter-State Post Graduate Medical Association of North America, Kansas City, Mo., October 17-21. Dr. W. B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Kentucky State Medical Association, Owensboro, October 3-6. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, September 14-16. Dr. Charles Wood Fassett, 115 East Thirty-First Street, Kansas City, Mo., Secretary.

New York and New England Association of Railway Surgeons, New York, Oct. 21-22. Dr. Horace H. LeSeur, 41 Jackson Street, Batavia, N. Y., Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 3-6. Dr. Walter F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Vermont State Medical Society, Middlebury, Oct. 13-14. Dr. W. G. Ricker, 29 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Petersburg, Oct. 18-20. Miss Agnes V. Edwards, 104½ West Grace St., Richmond, Secretary.

Wisconsin, State Medical Society of, Eau Claire, September 21-23. Mr. J. G. Crownhart, 153 Oneida Street, Milwaukee, Executive Secretary.

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Diseases of Children, Chicago

**33:** 867-1038 (June) 1927

*Growth of Thymus: Relation to Status Thymicolymphaticus and Thymic Symptoms. E. Boyd, Minneapolis.—p. 867.

*Asthma in Children: III. Incidence and Significance of Various Diseases and Infections, and of Tonsillectomy and Adenoidectomy. M. M. Peshkin, New York.—p. 880.

*Bacteria in Diphtheria: Invasion of Blood Stream by Klebs-Loeffler Bacillus and Associated Organisms. E. Martmer, Detroit.—p. 895.

*Essential Thrombocytopenia in Infant. H. M. Greenwald, New York.—p. 900.

*Syphilitic Cirrhosis of Liver in Infant. V. Joukovsky, Smolensk, Russia.—p. 905.

*Sanguineous Lacrimation. Z. R. Scott, Pittsburgh.—p. 907.

*Effect of Potent Parathyroid Extract on Calcium Balance in Infants. L. A. Hoag, H. Rivkin, C. E. Weigele and F. Berliner, New York.—p. 910.

*Anuria of Seven Days' Duration in Child with Scarlet Fever. H. L. Higgins and W. J. Graf, Cincinnati.—p. 926.

*Gonococcus Arthritis in Infancy. M. B. Cooperman, Philadelphia.—p. 932.

Volvulus in Infant Aged Fifteen Days. J. W. Bruce, Louisville, Ky.—p. 949.

Urologic Problems in Infancy and Childhood. H. L. Kretschmer, Chicago.—p. 952.

**Growth of Thymus.**—Boyd asserts that the growth curve of the thymus in a well nourished child is of the same type as that of the lymphoid tissues in general.

**Asthma in Children.**—Among the diseases and conditions responsible for initiating the onset of asthma in a series of cases, Peshkin says were pertussis, 15 per cent; acute pneumonia, 14 per cent; measles, 4 per cent; tonsillectomy and adenoidectomy, 3 per cent, and scarlet fever, 2 per cent—a total incidence of 38 per cent. Measles, acute pneumonia and diphtheria had a temporarily beneficial effect on the course of asthma. Pertussis aggravated asthma. The incidence of chronic bronchitis and emphysema with deformity of the chest was 12 per cent, and without deformity of the chest it was 8 per cent, a total incidence of 20 per cent. Hypertrophied and diseased adenoids and tonsils did not operate as a causative factor of asthma. In 3 per cent of the cases, tonsillectomy and adenoidectomy aggravated the asthma. The removal of tonsils and adenoids did not relieve asthma except in one instance, and in that the relief was only temporary. Chronic unresolved pneumonia as an etiologic factor occurred in 2 per cent of the cases in the entire series. Subacute pulmonary infiltration (a new term) occurred in 11 per cent of the cases. Physical overexertion, indiscretion in diet, especially the eating of ice cream and the drinking of iced liquids, variations of weather, the change of seasons and exposure to winds and freshly painted rooms were important contributory factors in inducing asthmatic attacks. The association of pertussis, measles, scarlet fever, acute pneumonia and tonsillectomy and adenoidectomy with the onset of asthma in the cases of this series is sufficiently striking to command attention from the standpoint of prophylaxis.

**Bacteria in Diphtheria.**—Martmer is convinced that diphtheria is at times complicated by a blood stream infection. *Bacillus diphtheriae* may invade the blood stream in severe cases. The septic type of diphtheria may be caused by a streptococcic septicemia complicating diphtheria. Hemorrhagic diphtheria probably is caused by a *B. diphtheriae* bacteremia.

**Essential Thrombocytopenia in Infant.**—Greenwald's patient was only 4½ months old. A search of the literature reveals that it represents perhaps the youngest infant with acquired essential thrombocytopenia.

**Syphilitic Cirrhosis of Liver in Infant.**—Joukovsky reports a case of atrophic cirrhosis of the liver of syphilitic origin in a breast fed infant of 4 months.

**Sanguineous Lacrimation.**—A summary of the etiologic factors concerned in the nineteen cases found by Scott in the literature shows six cases associated with menstrual disturbances; three cases of emotional strain; one case of rupture of the capillary vessels of the eye; one case of conjunctivitis; one case of tumor of the eyelids; one case probably from the lacrimal gland; one case due to back pressure from the nasal cavity, and five cases, cause not given. The case reported by Scott was one of sanguineous lacrimation resulting from an acute inflammation of the lacrimal gland, associated with an upper respiratory infection.

**Effect of Parathyroid Extract on Calcium Balance.**—The influence of potent parathyroid extracts on the calcium (and total phosphorus) balance was studied by Hoag et al. in seven infants: one normal, four rachitic and two with infantile tetany. One normal infant and three infants with rickets showed distinct diminution of calcium retention during the periods in which parathyroid extract was administered. One patient with rickets was given parathyroid extract daily for twenty-five days without producing recognizable roentgenologic evidence of either calcium removal or deposition in the radius and ulna. Two patients with infantile tetany showed a slight tendency toward increased retention of calcium during the periods in which parathyroid extract was administered. One rachitic patient with striking signs of disturbed calcium metabolism showed a more marked increase in the retention of calcium. In these cases the concentration of serum calcium was initially low and was not markedly raised by the extract (never reaching normal levels). The urine in all periods contained such minute quantities of calcium that significant changes could not be detected by the method employed.

**Anuria of Seven Days' Duration in Child.**—Higgins and Graf recognize a bare possibility that the diphtheria antitoxin may have played some rôle in the causation of the anuria in their case. Nephritis appeared on the sixth day of severe scarlet fever. Anuria lasted seven and one-fourth days and was without symptoms of uremia. The patient was treated for anuria by means of hypertonic (dehydrating) solutions, which incidentally caused a collapsing pulse and low diastolic blood pressure. The function of the kidney was being restored until a streptococcus septicemia caused further injury to the kidney (suppurative nephritis). This late scarlatinal septicemia resulted in otitis media and empyema, and finally in the death of the patient.

**Gonococcus Arthritis in Infants.**—Of 182 new-born infants, sixty-seven were infected with gonococcus, fifty-three of which presented joint complications; the others presented infections of the mucous membrane only. All the infected infants came from the same ward. The rectum is indicated as the most likely portal of entry because a number of male and female infants had purulent rectal discharges, ischiorectal abscesses and positive rectal smears. The infection was conveyed through the abdominal lymphatics to the blood stream and thence metastasized to the joints.

### American J. of Obst. & Gynec., St. Louis

**13:** 689-824 (June) 1927

*Cause of Oligohydramnios. W. Schiller, Vienna, and R. M. Toll, Scranton, Pa.—p. 689.

Ectopic Endometrium in Ovary and Inguinal Canal. E. F. Schmitz, St. Louis.—p. 705.

Primary Carcinoma of Fallopian Tube: Three Cases. D. N. Barrows, New York.—p. 710.

*Magnesium Sulphate Intravenously in Eclampsia. E. M. Lazard, Los Angeles.—p. 720.

Treatment of Obstructing Rectovaginal Endometriosis. W. P. Graves, Boston.—p. 728.

Emotional Life of Woman in Relation to Practice of Gynecology. D. Macomber, Boston.—p. 732.

*Results of Operations for Retroversion. R. A. Hurd, New York.—p. 742.

*Abdominal Twin Pregnancy. J. A. Harrar, New York.—p. 752.

Prevention of Carcinoma of Cervix. H. R. Charlton, Bronxville, N. Y.—p. 755.

Principles of Treatment of Genital Prolapse: Technic of Ventrofixation of Vagina. L. Fraenkel, Breslau.—p. 757.

New Sagittal Pelvimeter. H. Acosta-Sison, Manila, P. I.—p. 760.

Pneumonia as Sequel to Anesthesia. M. P. Rucker, Richmond.—p. 764.

Pathogenesis of Pemphigus Neonatorum. F. H. Falls, Iowa City.—p. 774.
*Can Quinine Kill Fetus in Utero? G. Gellhorn, St. Louis.—p. 779.
Case of Umbilical Cord Coiled Five Times Around Infant's Neck. W. Gossett, Louisville, Ky.—p. 783.
Case of Ruptured Uterus During Second Labor After Cesarean Section. P. E. Thornhill, Watertown, N. Y.—p. 784.
Obstetric Tampon. A. M. Campbell, Grand Rapids, Mich.—p. 785.

**Cause of Oligohydramnios.**—Schiller and Toll consider inflammation of the decidua (endometritis) the primary and important etiologic factor of oligohydramnios in the one case reported.

**Magnesium Sulphate Intravenously in Eclampsia.**—The results reported by Lazard tend to show that the intravenous use of therapeutic doses of magnesium sulphate does not have any immediate bad effects on the blood, while its continued use in the one eclamptic patient (nephritic type) resulted in a marked reduction in the blood sugar, creatinine and uric acid, coincident with the clearing of the active eclamptic condition.

**Results of Operation for Retroversion.**—One thousand operations for retroversion of the uterus, performed by a group of surgeons, are analyzed by Hurd. The series shows 96 per cent of anatomic cures throughout the period of observation, which averaged twenty months. There appears to be little choice between the several varieties of round ligament suspension as far as mechanical end-results are concerned. Of the operations frequently done, Bissell's yielded the lowest and Gilliam's the highest percentage of recurrences. End-results of retroversion operations considered symptomatically appear to depend largely on the symptoms which the lesion produces. One may expect a higher proportion of cures when the patient enters for pain, backache or other discomfort than when she applies for relief of sterility or some disorder of menstruation. That the reconstructed supporting ligaments of the uterus can undergo evolution during pregnancy is demonstrated by the paucity of spontaneous abortions in women who have undergone operation. A full-term pregnancy was followed by a recurrence of retroversion in a previously suspended uterus approximately once in seven cases.

**Abdominal Twin Pregnancy.**—According to Harrar, abdominal pregnancy has occurred ten times at the New York Lying-In Hospital in 156,000 confinements, an incidence of one in 15,600. Five were true intraligamentous cases; two, tubo-abdominal; one, the rarest type of all, utero-abdominal, and two indeterminable, as the sac adherent to the anterior abdominal wall was opened into directly and not otherwise oriented. Six occurred in primiparas; three in secundiparas, and one in a tertipara. Six women lived and four died, a mortality of 40 per cent. Of the four that died, two were frankly septic on admission, and one was in a condition of hemorrhagic shock from efforts at a vaginal delivery before admission to the hospital. The fourth died from hemorrhage accompanying the removal of the placenta of a living fetus. Of the six that lived, all were delivered of macerated fetuses by laparotomy. Of the four that died, two had macerated and two had living fetuses. The two infants that were born alive died within a few hours, one, six months premature, and the other at full term, of atelectasis and asphyxia. A twin tubal pregnancy becoming abdominal is reported. One twin died at the third month; the other lived seven and one-half months, and died when the sac ruptured, one month before operation.

**Can Quinine Kill Fetus in Utero?**—The popular method of induction of labor by means of castor oil and quinine is, according to the literature, an entirely harmless procedure which does not threaten danger to either mother or child. A personal experience is recorded by Gellhorn in which the usual dose of quinine was followed by the intra-uterine death of the child. The latter was expelled in a macerated condition seventeen days after castor oil and quinine had been administered for the induction of labor. No cause for the fetal death could be detected by a thorough examination of the mother, the child and the placenta. The signs of intra-uterine death occurred so promptly after the ingestion of quinine that a causal relationship between the two must be assumed.

## American Journal of Public Health, Albany, N. Y.

**17:** 549-669 (June) 1927

Money Value of Life and Life Extension. L. I. Dublin and A. J. Lotka, New York.—p. 549.
Correlation of Infant Salvage with Nursing Effort. J. R. Earp, Yellow Springs, Ohio.—p. 557.
Compensation and Industrial Hygiene. C. T. Graham-Rogers, Albany.—p. 560.
*Etiology of Measles. N. S. Ferry, Detroit.—p. 565.
Function of Dentist in School Health Procedure. H. R. C. Wilson, Cleveland.—p. 578.
Scoring of Fifty-Seven New York State Cities. H. Williams, Albany.—p. 584.
Eliminating Pollution: I. From Lake Michigan. L. Pearse, Chicago.—p. 588.
Id.: II. Lake Superior. G. H. Ferguson, Ottawa.—p. 601.
Accuracy of Bacterial Counts from Milk. R. S. Breed, Geneva, N. Y.—p. 604.
*Measles Immunization. D. L. Richardson and H. P. B. Jordan, Providence, R. I.—p. 607.

**Etiology of Measles.**—*Streptococcus morbilli,* an organism characterized by its production of a soluble or extracellular toxin specific to measles, was first described by Ferry, in March, 1926. Live and dead agar suspensions of this organism, as well as the broth filtrate in which it has grown, when injected subcutaneously or intracutaneously into rabbits, produce typical local reactions followed frequently by generalized rashes and congestion of the conjunctivae.

**Measles Immunization.**—Richardson and Jordan assert that convalescent measles serum will prevent the disease in from 50 to 75 per cent of those immunized. The disease in most instances is made much milder, and complications are greatly lessened.

## Archives of Dermatology and Syphilology, Chicago

**15:** 647-768 (June) 1927

*Varicose Ulcers of Leg: Treatment with Thrombosis and Gelatin Cast Bandages. A. B. Cannon and F. P. Lowenfish, New York.—p. 647.
*Fever in Tertiary Syphilis. H. M. Korns, Cleveland.—p. 652.
Hypercholesterolemia: III. Approach to Pathogenesis of Xanthomas. F. D. Weidman, Philadelphia.—p. 659.
*Purified Coal Tar Ointment for Treatment of Infantile Eczema. M. O. Nelson and A. E. Osterberg, Rochester, Minn.—p. 669.
*Actual Superficial Therapy by "Grenz" (Infra-Roentgen) Rays: Correlation with Internal Organs. G. Bucky, New York.—p. 672.
*Fusospirillary Dermatitis: Occurrence in Acute Pellagra. S. S. Greenbaum, Philadelphia.—p. 678.
Pityriasis Versicolor and Ultraviolet Rays: Achroma Cutis Postparasitaria. E. V. Kistiakovsky, Kiev, Ukraine.—p. 685.
*Syphilis Following Trauma. J. P. Thornley, New York.—p. 690.
Syphilis to Third Generation. C. P. Bondurant, Oklahoma City, Oklahoma.—p. 695.
Granuloma Inguinale of Face and Mouth. D. M. Sidlick, Philadelphia.—p. 703.

**Treatment of Varicose Ulcers.**—Cannon and Lowenfish thrombose the veins by injecting into them from 0.5 to 2 cc. of sodium salicylate solution and then bandaging the leg with 2-inch (5 cm.) gauze soaked in a warm solution of Unna's gelatin glue. The composition of this is: zinc oxide, 1,000 Gm.; gelatin, 600 Gm.; glycerin, 1,400 cc., and distilled water, 2,200 cc. The cast may be left on for one or two weeks, being changed only when soaked with secretions from the ulcer, or when the patient complains of undue pressure. Injections are usually made into the veins about once a week, or whenever the casts are changed. They may be made into a single vein in several different locations, but usually not closer than 3 inches (7.6 cm.) apart. The number of treatments varies from one to seven, and the total quantity of the injected solution from 0.5 to 25 cc. The formula of the injection fluid is: sodium salicylate, 1.8 Gm.; procaine hydrochloride, 0.05 cc., and distilled water, sufficient to make 6 cc.

**Fever in Tertiary Syphilis.**—A case is reported by Korns which illustrates the fact that syphilis must be given adequate consideration in the endeavor to discover the cause of recondite pyrexia of long duration.

**Coal Tar Ointment for Infantile Eczema.**—A substance containing the active principle responsible for the beneficial action of crude coal tar in cases of infantile eczema has been removed by Nelson and Osterberg from the crude product by steam distillation. An ointment free from the tendency to cause folliculitis and the disagreeable staining properties of crude coal tar has been made from this separated product.

**Grenz or Infra-Roentgen Rays.**—Bucky states that electromagnetic oscillations of wavelengths of about 2 angstrom units produce new biologic effects. These rays are entirely harmless because with the proper technic they are absorbed by the upper layers of the skin, saving the germinative layers. The Grenz rays will replace the roentgen rays in dermatology to a great extent. The results of this therapy in disturbances of the autonomic nerve system and endocrine secretion are promising.

**Fusospirillary Dermatitis.**—Two cases of fusospirillary dermatitis are reported by Greenbaum, one of the external auditory canal and the other of the hands and vulva.

**Syphilis Following Trauma.**—With an ordinary blister as a foundation, Thornley's patient developed a syphilitic ulcer of the palm of the hand. It yielded readily to treatment.

## Archives of Neurology and Psychiatry, Chicago

**18:** 1-158 (July) 1927

*Decerebrate Rigidity Following Encephalitis. T. H. Weisenburg and B. J. Alpers, Philadelphia.—p. 1.
*Intradural Spinal Lipoma in Child. B. Stookey, New York.—p. 16.
*Acute (Epidemic?) Encephalitis in New-Born Twin. G. B. Hassin, Chicago.—p. 44.
Comparison of Vernes and Wassermann Tests as Applied to Spinal Fluid. L. H. Cornwall, New York.—p. 56.
*Demonstration of Spirochaeta Pallida in Single Microscopic Sections. R. R. Dieterle, Ann Arbor, Mich.—p. 73.
Cerebral Circulation. H. S. Howe and E. McKinley, New York.—p. 81.
Neuropsychiatry in China. J. L. McCartney, Shanghai, China.—p. 87.

**Decerebrate Rigidity Following Encephalitis.**—Weisenburg and Alpers report a case of parkinsonian state with extreme rigidity of all four extremities closely resembling decerebrate rigidity, with profuse perspiration following encephalitis. Death occurred seven months after onset. At the necropsy the observations of importance were fibrotic thickening of the pia mater, slight cell changes in the globus pallidus and thalamus, and marked degenerative and inflammatory changes in the substantia nigra, with degenerative changes in the nucleus ruber.

**Intradural Spinal Lipoma in Child.**—Stookey reports a case in a child, aged 11, in which symptoms were present for ten years. Before operation the diagnosis was intramedullary tumor of the midcervical region. The postoperative diagnosis was: lipoma, intramedullary and extramedullary, apparently arising out of the cord or secondarily invading the cord; no line of demarcation.

**Acute Encephalitis in New-Born Twin.**—Hassin reports the case of a child, a twin, born by a normal delivery; it weighed 6½ pounds (2.9 Kg.), had club feet, hypospadias, an imperforate anus and congenital cystic kidneys; the ulna and the thumb on the right were missing. The child died on the fifteenth day after birth. For two days preceding death, the child had a rise of temperature. The symptoms evidently were not sufficiently striking to call for detailed clinical study. On the basis of the pathologic studies of this case, of that of DaFano and the facts furnished by experimental research, Hassin concludes that the case was most likely one of epidemic encephalitis, that is to say, an exogenous infectious disease. The condition affected a new-born child, one of twins, and was not inborn. Had the child recovered, with the disease unrecognized or not even suspected, some sequelae, such as epilepsy, mental deficiency, idiocy or behavior disorder, would be expected. In other words, any of these or similar disorders observed in grown children may be caused by inflammatory brain lesions occurring in early infancy.

**Silver Staining of Spirochetes.**—Staining with a 1 per cent silver solution and subsequent reduction in a developer solution are perhaps the two most important steps in Dieterle's method.

## Arch. of Physical Therapy, X-Ray, Radium, Omaha

**8:** 279-327 (June) 1927

Radium Emanations in Carcinoma of Mouth and Throat. S. Salinger, Chicago.—p. 279.
Malignant Tumors of Pharynx and Larynx. F. J. Novak, Jr., Chicago.—p. 285.
Rational Methods of Tonsil Treatment. W. D. McFee, Haverhill, Mass.—p. 289.
Treatment of Nerve Palsies. J. C. Elsom, Madison, Wis.—p. 293.
Treatment of Tuberculosis by Physical Agents. W. B. Chapman, Carthage, Mo.—p. 301.
Skin Blemishes. H. Goodman, New York.—p. 308.

## Boston Medical and Surgical Journal

**196:** 1031-1074 (June 23) 1927

*Total Cystectomy for Cancer. G. G. Smith, Boston.—p. 1031.
*Exstrophy of Bladder. F. H. Colby, Boston.—p. 1033.
Torsion of Spermatic Cord. H. A. Johnson, Lynn, Mass.—p. 1036.
Incompetent Ureterovesical Valve on Uninvolved Side in Renal Tuberculosis. B. C. Wheeler, New York.—p. 1040.
*Acute Corpora Cavernositis. R. C. Graves, Boston.—p. 1043.
Ectopic Kidney: Three Cases. A. H. Crosbie, Boston.—p. 1045.
Was It Malignant? Tumor of Bladder Treated by Nonoperative Means. J. H. Cunningham, Boston.—p. 1046.
Progress of Orthopedic Surgery. R. K. Ghormley, Boston.—p. 1049.

**Cystectomy for Cancer.**—Smith reports a case of cystectomy for cancer in which rectal implantation of the ureters was done. Thirteen months after the operation, the patient reported that he was entirely well.

**Exstrophy of Bladder.**—In Colby's case, one ureter was implanted into the sigmoid, the other into the cecum in order to avoid tension. The boy, aged 10, is in the best of health. His bowel control is excellent except when he is nervous and tired. There was an average of three bowel movements in twenty-four hours.

**Acute Corpora Cavernositis.**—Priapism was present in Graves' case for fourteen days before operation on the corpora cavernosa was done. Immediately on opening these structures there was an escape of black, tarlike substance, resembling old blood, and the priapism began to disappear. Fresh bleeding was not found. The corpus on each side was found to be a mere shell, with erectile tissue apparently largely destroyed and replaced by clot. At the close of the operation, the priapism had entirely disappeared. No cause for this condition was discovered.

## California and Western Medicine, San Francisco

**26:** 737-880 (June) 1927

Medicine in Department of Interior. H. Work, Washington, D. C.—p. 770.
Profit and Loss Account of Modern Medicine. S. McGuire, Richmond, Va.—p. 772.
*Diagnosis of Drunkenness: Quantitative Study of Acute Alcoholic Intoxication. E. Bogen, Los Angeles.—p. 778.
Associated Fees: Medical and Surgical. F. R. Fairchild, Woodland, Calif.—p. 783.
Progress in Pediatrics. A. J. Thornton, San Diego, Calif.—p. 785.
Art and Science of Urology. H. A. Rosenkranz, Los Angeles.—p. 787.
Spontaneous Rupture of Hydronephrotic Sac Secondary to Ureteral Stone. C. P. Mathé and G. F. Oviedo, San Francisco.—p. 790.
Cretinism: and Its Relation to Thyroid Disease. C. C. Tiffin, Seattle.—p. 795.
Review of Necropsies, Medical Service, Los Angeles General Hospital. N. C. Paine, Glendale.—p. 796.
Cesarean Section in Obstructed Pelves. R. K. Smith and T. H. Kelly, San Francisco.—p. 798.
Skin Cancer of Face and Neck. C. R. Lounsberry, San Diego, Calif.—p. 800.
Acrodynia: Case. J. W. Robinson, Los Angeles.—p. 801.
*Ephedrine in Adams-Stokes Syndrome. M. Hollingsworth, Santa Ana, Calif.—p. 802.
Cutaneous Sporotrichosis: Case. P. B. Gallegos, Stockton, Calif.—p. 802.
James H. Parkinson: Memorial Tribute. W. E. Briggs, Sacramento, Calif.—p. 803.

**Diagnosis of Drunkenness.**—In view of the difficulty in making the diagnosis of acute alcoholic intoxication from the clinical evidence alone, as may be confirmed from a review of the data in the cases presented, and in view of the constancy of the observations as to the concentration of alcohol in the urine and in the breath with reference to the degree of alcoholic intoxication, it is concluded by Bogen that the examination of patients to determine the state of intoxication should in every case include some quantitative determination of the amount of alcohol present in the urine, breath or body fluids. It is not expected that such a test should supersede and entirely replace all of the other clinical evidence presented, but Bogen relies on the alcoholic concentration in the urine, breath or tissues as the most important single factor in arriving at a correct conclusion as to the degree of intoxication of a patient.

**Ephedrine in Adams-Stokes Syndrome.**—Hollingsworth reports the case of a woman, aged 68, who had been having an average of three attacks every ten minutes, which prevented her sitting up. When ephedrine was given, in one 0.05 Gm. capsule by mouth, the attacks ceased within thirty minutes, and did not recur for thirty-six hours. On taking one capsule each morning, the patient was completely freed from the attacks, and was able to resume her household duties. After the drug had been taken for three weeks, it was withheld, but the attacks recurred in forty-eight hours, so its use was resumed. The feeling of trembling in the knees that accompanied the administration of ephedrine the first few days disappeared on its continued administration.

## Journal of Industrial Hygiene, Baltimore

**9:** 267-314 (July) 1927

Backache Due to Industrial Injuries. S. Kleinberg, New York.—p. 267.
Wet Kata Thermometer as Index of Suitability of Atmospheric Conditions for Heavy Work. H. M. Vernon, London.—p. 287.
Temperature, Humidity and Air Movement in Industries: Effective Temperature Index. C. P. Yaglou, Boston.—p. 297.

## Journal of Nervous & Mental Dis., New York

**65:** 553-660 (June) 1927

*Pupils as Aid to Diagnosis in Coma. W. C. Menninger, Topeka, Kan.—p. 553.
*Blood Groups in Mental Diseases. F. Proescher and A. S. Arkush, Agnew, Calif.—p. 569.
Endocrine and Biochemical Studies in Schizophrenia. K. M. Bowman, Boston.—p. 585.

**Pupil as Aid to Diagnosis in Comas.**—The pupillary status, including equality, size and reaction to light, has been analyzed by Menninger in 225 cases of complete coma. In fifty-eight cases of alcoholism, inequality occurred in 13.8 per cent, and contraction in 43.1 per cent; 44.8 per cent responded promptly to light stimulation, and 36.2 per cent were fixed. In ten cases of diabetic coma, there was no uniformity in the observations. In eight cases of uremic coma, there seems to be a variation in the size, but the light reflex was impaired in varying degrees in every case, one of which was fixed. Inequality occurred only once. In forty-six cases of cerebral hemorrhage, nearly three-fourths (73.9 per cent) showed anisocoria. The dilated pupil usually occurs on the side corresponding to hemorrhage, but this depends on the location and extent of the hemorrhage. There is no uniformity in the size of the pupils; in this series a slight majority were contracted. Nearly half the series (43.3 per cent) were entirely fixed and twenty-one other cases (45 per cent) were distinctly sluggish. In five cases of pontine hemorrhage, all were uniformly contracted, and either very sluggish or fixed to light stimulation. In forty-three cases of carbon monoxide poisoning, there was a marked variation in the size and the reaction to light. Fifty and six-tenths per cent were in mid-dilation; 34.5 per cent were contracted; 49.3 per cent reacted promptly, and 29.1 per cent were fixed. In fifty-five cases of fractured skull, inequality of the pupils occurred in 37.8 per cent; in 81 per cent of these cases there is either proof or evidence that the dilatation occurred on the side of the brain trauma. In the remaining cases it is probable that the fracture was contre-coup from the point of trauma, and consequently the dilatation agreed with the side on which there was brain trauma. Not quite half the cases (41.4 per cent) were fixed to light, and an additional 23.4 per cent were sluggish in reaction.

**Blood Groups in Mental Diseases.**—The grouping of 2,104 cases lead Proescher and Arkush to conclude that the character of a psychosis is neither determined nor indicated by the blood group, though the susceptibility is so indicated. Distribution of blood groups in psychoses and in a specific psychosis is constant, as is also the distribution of the specific psychosis within the blood groups.

## Military Surgeon, Washington, D. C.

**60:** 645-772 (June) 1927

Medical Service of Infantry Division in Combat: I. R. C. Heflebower.—p. 645.
On Duty with Troops. L. L. Gardner.—p. 677.
Malaria at Camp Stotsenburg, P. I. C. H. Lovewell.—p. 683.
Body Weight in Naval and Marine Corps Applicants. H. M. Behneman.—p. 701.
Diagnosis of Malignancy in Tumors. G. R. Callender.—p. 712.

## Minnesota Medicine, St. Paul

**10:** 341-404 (June) 1927

Ninety-Three Scarlet Fever Cases. G. J. Ferreira, Aurora.—p. 341.
Tumors of Bones. E. L. Schield, Mankato.—p. 345.
Actinotherapy in Pediatrics. F. W. Schlutz, Minneapolis.—p. 358.
Sterile Purulent Effusions Complicating Induced Pneumothorax. E. K. Geer, St. Paul.—p. 361.
Control of Infections in Wounds of Bones and Joints. H. W. Orr, Lincoln, Neb.—p. 362.
Diverticula of Duodenum. W. P. Herbst, Minneapolis.—p. 364.
Ileostomy in Acute Peritonitis. C. J. Holman, Mankato.—p. 369.
René Théophile Hyacinthe Laennec. J. A. Myers and L. H. Cady, Minneapolis.—p. 370.
Care of Hemorrhoid Patients. H. E. Hullsiek, St. Paul.—p. 377.

## New Jersey Medical Society Journal, Orange

**24:** 341-402 (June) 1927

Scientist and Artist. E. E. Brown, New York.—p. 341.
Clinical Utilization of Laboratory. R. A. Kilduffe, Atlantic City.—p. 345.
Facial Reconstructive Surgery. J. Maliniak, New York and Newark.—p. 349.
Ophthalmologic Aspects of Focal Infection. E. S. Sherman, Newark.—p. 356.
Ear as Focus of Infection. H. Barkhorn, Newark.—p. 359.
Focal Infection as Related to Head Surgery. W. F. Barry, Newark.—p. 362.
Ring Worm Infection of Hands and Feet. C. R. Mitchell, Paterson.—p. 363.
Menstrual Function in Relation to Pulmonary Tuberculosis. G. C. Burrows, Atlantic City.—p. 365.

## New Orleans Medical and Surgical Journal

**79:** 877-942 (June) 1927

Dignity of Medicine. H. A. Royster, Raleigh, N. C.—p. 877.
Criminal Abortion. E. A. Ficklen, New Orleans.—p. 884.
*Appendicitis Due to Bacillus Typhosus. W. H. Parsons, Vicksburg, Miss.—p. 893.
Occurrence of Various Tineae in New Orleans: Trichophyton Louisianicum. A. Castellani, New Orleans.—p. 896.
Angina Pectoris. C. Jamison, New Orleans.—p. 900.
Management of Hypertension. O. S. Warr, Memphis, Tenn.—p. 907.
Medicine in Talmud. M. Silber, New Orleans.—p. 910.
Diathermy in Treatment of Neisserian Infections of Women. H. W. E. Walther, New Orleans.—p. 914.
New Urethral Sound. C. L. Peacock, New Orleans.—p. 917.

**Appendicitis Due to Typhoid Bacillus.**—Parsons reports a case of appendicitis with perforation of the ileum about 1½ (3.7 cm.) inches from the junction with the cecum, and a small perforation near the end of the appendix. The appearance of the perforation and the ulcer of the appendix suggested typhoid. The typhoid bacillus was isolated from the feces and from the appendix. The total leukocyte count was 7,200.

## Occupational Therapy and Rehabilitation, Baltimore

**6:** 175-252 (June) 1927

Interrelation Between Occupational Therapy and Subsequent Vocational or Industrial Rehabilitation. O. M. Sullivan, St. Paul.—p. 175.
Relationship Between Work of Occupational Therapist and Academic Teacher in Children's Hospital or School for Crippled Children. W. M. Smith, Louisville, Ky.—p. 187.
Occupational Therapy in Infirmary. R. H. Sartwell, Howard, R. I.—p. 191.
Arranging for Practice Training in State Hospitals for Undergraduate Students of Training Schools. M. Putman, Harrisburg, Pa.—p. 199.
"The Volunteer Worker." A. H. Dean, Evanston, Ill.—p. 209.
Hospital or Sanatorium Magazine as Occupational Therapy Activity. B. M. Harman, Verona, N. J.—p. 213.
Room and Equipment for Occupational Therapy in General Hospital. M. K. Kribben, St. Louis.—p. 221.
Value and Limitations of Attendants in Occupational Therapy Departments in Mental Hospitals. M. R. Spear, Kalamazoo, Mich.—p. 225.
Occupational Therapy in Sweden. A. Vogel. Göteborg, Sweden.—p. 229.

## Public Health Journal, Toronto

**18:** 251-300 (June) 1927

Maternal Welfare in United States and Canada. W. W. Lailey, Toronto.—p. 251.
How to Safeguard Milk We Use. J. W. S. McCullough, Toronto.—p. 255.
Canadian Red Cross Society. W. R. Riddell, Toronto.—p. 258.
Low Birth Rate of British Columbia: Causes and Remedy. H. B. French.—p. 262.
Antisyphilitic Pharmacopeia of Fracastorius. W. R. Riddell, Toronto.—p. 267.

Red Cross Outpost Hospitals. F. W. Routley, Maple, Ont.—p. 280.
Sanitary Inspectors' Association of Canada: Housing and Health. A. Officer, Winnipeg, Man.—p. 284.

## Public Health Reports, Washington, D. C.

**42:** 1683-1748 (June 24) 1927

*Spleen Rate as Measure of Malaria Prevalence in United States. C. P. Coogle, Washington, D. C.—p. 1683.
Comparison of Incidence of Illness and Death: (1) by Cause and (2) by Age of Persons Affected. E. Sydenstricker, Washington, D. C.—p. 1689.

**Spleen Rate as Measure of Malaria Prevalence.**—The results of Coogle's studies show that, except for certain very limited areas, malaria is only lightly endemic in the southern part of the United States. The spleen and blood rates are, for the most part, quite low as compared with similar rates in the native populations of many tropical countries. The spleen rate is evidently a useful index in the South; but, owing to the small numbers involved, it should be supported whenever practicable by the examination of blood smears.

## Radiology, St. Paul

**8:** 461-550 (June) 1927

*Colloidal Lead in Treatment of Cancer. H. J. Ullmann, Santa Barbara, Calif.—p. 461.
Cancer Problem. M. J. Sittenfield, New York.—p. 465.
*Metallic Colloids in Treatment of Cancer. A. Soiland, W. E. Costolow and O. N. Meland, Los Angeles.—p. 469.
Rhinologic Aspect of Bronchial Asthma. M. V. Mullin, Cleveland.—p. 482.
Diagnostic Value of Iodized Oil in Intrathoracic Lesions. A Hartung, Chicago.—p. 488.
Iodized Oil and Pneumoperitoneum in Gynecology. I. F. Stein and R. A. Arens, Chicago.—p. 494.
Sinus Mapping by Displacement Method. A. W. Proetz and E. C. Ernst, St. Louis.—p. 502.
Use of Dental Films in Determination of Stray Radiation. R. S. Landauer, Chicago.—p. 512.
Mensuration and Localization by Means of Roentgen Ray. C. R. Johnson, Los Angeles.—p. 518.

**Colloidal Lead Treatment of Cancer.**—Ullmann relates his experiences with lead orthophosphate in the treatment of tumors. The apparent clinical effect on the tumors, shown by initial pain and swelling followed by reduction in size, seems to be as marked as after the administration of the metallic colloid. The toxic effects have been negligible.

**Metallic Colloids in Cancer.**—Soiland et al. were rather disappointed in the results obtained by them from treating malignant tumors with colloidal gold, copper and lead. Of those patients who were given colloidal lead, only two showed any apparent improvement. All the others became progressively worse, and in two cases death was undoubtedly hastened as a result of the treatment.

## Southwestern Medicine, Phoenix, Ariz.

**11:** 247-298 (June) 1927

Iodine in Treatment of Goiter. A. B. Cooke, Los Angeles.—p. 247.
Intangible Thyroid Relationships. R. Moore, Los Angeles.—p. 249.
Cesarean Section. E. R. Charvoz, Phoenix.—p. 253.
Use of Obstetric Forceps. R. W. Eaton, Phoenix.—p. 256.
Obstetric Deaths in Two Hospitals for 1925 and 1926. J. W. Thomas, Phoenix.—p. 258.
Are We Practicing Good Obstetrics? K. Bannister, Phoenix.—p. 259.
Management of Eclampsia and Preeclamptic State. D. Fournier, Phoenix.—p. 262.
Pioneers in Medical History of New Mexico. C. B. Elliott, Raton, N. M.—p. 264.

## Surgery, Gynecology and Obstetrics, Chicago

**44:** 721-846 (June) 1927

Orbito-Ethmoidal Osteomata Having Intracranial Complications: Four Cases. H. Cushing, Boston.—p. 721.
*Helietherapy in Surgical Tuberculosis. N. Allison, Boston.—p. 743.
*Enterovesical Fistula. R. G. Craig and R. K. Lee-Brown, Sydney, Australia.—p. 753.
*Grades of Malignancy in Primary Carcinoma of Gallbladder. I. M. Webber, Rochester, Minn.—p. 756.
*Lymphatic Involvement in Carcinoma of Pyloric End of Stomach. F. A. Bothe, Rochester, Minn.—p. 761.
Chronic Rhinopharyngeal Disease. B. R. Shurly, Detroit.—p. 766.
Otologic Problems. E. H. Cary, Dallas, Texas.—p. 770.
Conditions of Eyeball arising from Rhinopharyngeal Disease. W. H. Luedde, St. Louis.—p. 775.
Unilateral Atrophic Optic Neuritis. W. T. Davis, Washington, D. C.—p. 784.
Cesarean Section Followed by Temporary Exteriorization of Uterus: Portes Operation. L. E. Phaneuf, Boston.—p. 788.
Bronchoscopy and Esophagoscopy. C. Jackson, Philadelphia.—p. 795.
*Hysterectomy of Fundus. P. Lecène and G. d'Allaines, Paris.—p. 805.
"Baseball Cover Flaps" in Leg and Thigh Amputations. T. G. Orr, Kansas City, Mo.—p. 810.
Technic of Surgery of Gastro-Intestinal Tract. J. E. Sweet, New York.—p. 811.
*Gastro-Enterostomy with Transverse Jejunal Incision. T. S. Moise, C. D. Haagensen and E. C. Vogt, New Haven, Conn.—p. 824.
*Utilization of Round Ligaments in Tubal Sterilization. J. Hofbauer, Baltimore.—p. 829.
Balkan Frame: Use in General Surgery. A. C. Johnson, Rochester, Minn.—p. 831.
Avulsion of Heel. R. Colp, New York.—p. 833.
*Use of Mercurochrome-220 Soluble in Septic Cavities. R. T. Davis, Fredericksburg, Va.—p. 836.

**Heliotherapy in Surgical Tuberculosis.**—Allison believes that operative surgery is not indicated in tuberculosis of the bones and joints until methods of heliotherapy have been employed for long periods of time.

**Enterovesical Fistula.**—In the case cited by Craig and Lee-Brown, the fistula connected the sigmoid with the bladder. The tip of the appendix was adherent to the cecum between the bladder and the sigmoid and also to the smaller intestine. The authors conclude that this must have been due to a ruptured appendix followed by abscess and communication between bowel and bladder.

**Malignancy of Gallbladder Carcinoma.**—The grade of malignancy in thirty cases of primary carcinoma of the gallbladder, treated by cholecystectomy, was studied by Webber to determine the existence of a relation between the length of life after operation and the grade of malignancy in the tumor removed. Twelve patients with carcinoma graded 2 or lower lived an average of two years and ten months. Fourteen patients with carcinoma graded 3 or higher lived an average of only four and eight-tenths months. Two patients with carcinoma graded 2 are living; one has remained in good health six years and seven months, and the other in fair health one year and one month. Of twelve tumors graded 2 or lower, four were found at operation associated with gross or microscopic evidence of extension or metastasis. Of fourteen tumors graded 3 or higher, thirteen were found at operation to be associated with similar evidence of extension or metastasis. In this group of cases the determination of the grade of malignancy through a study of the cell differentiation in a microscopic section of the tumor appeared to be a definite aid in estimating both the likelihood of metastasis and the relative length of the life of the patient after operation.

**Carcinoma of Pylorus with Lymphatic Involvement.**—A study was made by Bothe of 100 cases of carcinoma of the pyloric end of the stomach with involvement of the perigastric lymph nodes in which a portion of the stomach, including the growth, had been resected. It appears that the lymph nodes in closest proximity to the primary lesion are not necessarily those to be affected. The nodes nearest the entrance of the coronary vessels and the pylorus on the greater curvature were found to be affected most consistently. The size of the lymph node does not bear any definite relation to its involvement. The size of the growth does not bear any relation to the number of lymph nodes involved.

**Hysterectomy of Fundus.**—Lecène and d'Allaines have done 130 of these operations. Fundal hysterectomy is said to make it possible to preserve menstruation and avoid to a very great extent the symptoms of a premature menopause. The operation is indicated if the woman is young enough (less than 40) and it is possible to preserve a healthy ovary and a part of the body of the uterus. The operation is contraindicated if the lesions have not long since passed the acute stage and if the pelvic peritoneum has been changed by serious adhesions or suppurative perisalpingitis. Hemostasis and perfect peritonization are the essential steps of the operation, and they must be effected with the greatest skill. The mortality of the operation is low (two cases in 130), and it can be lowered still more by a better choice of cases.

**Gastro-Enterostomy with Transverse Jejunal Incision.**—Moise et al. again call attention to a method of anastomosis first described in 1925, whereby the jejunum is incised trans-

versely rather than longitudinally in order to avoid division of the circular muscle fibers. The theoretical advantages in this procedure are said to be several: The circular muscle fibers are not severed and accordingly there is a minimal interference with peristalsis; the intestinal loops gravitate downward without kinking, in the ideal mechanical position, and, finally, distention of the stomach does not have a tendency to produce obstruction but, on the contrary, maintains the patency of the lumen. In the experiments reported, a comparison is made between the usual gastrojejunostomy with longitudinal jejunal incision and the new method with a transverse jejunal incision. This study reveals a practical demonstration of the theoretical advantages of the transverse incision as described. In a series of ten dogs this procedure has proved to be mechanically and functionally satisfactory. In contrast, a comparable series of ten gastrojejunostomies with the usual longitudinal jejunal incision resulted in three cases of obstruction due to the formation of "values" already mentioned.

**Utilization of Round Ligaments in Tubal Sterilization.**—Hofbauer employs two methods. After the fallopian tube has been cut, its proximal end is ligated with silk, the suture being left with long ends. One end of this suture is then inserted through the round ligament on one side, while the other end passes through the ovarian ligament. Consequently, when the ends of the suture are pulled together, the round and ovarian ligaments will be approximated over the cut end of the tube so that they eventually envelop it in a blind culdesac, when tied closely. The principle involved in the second method is practically the same as that employed in the fixation of the inverted stump of the appendix to the cecum. The tube is severed in its midportion, or at the junction between the middle and outer thirds. The proximal cut end of the tube is then ligated with silk or silkworm gut. Then, with a fine French needle, a suture is inserted through the round ligament, which is pulled up in a loop by means of dissecting forceps, then through the tube, and again through the round ligament. When the ends of this suture are drawn together, the stump of the tube will be buried in the artificial niche that has been produced in the posterior surface of the round ligament.

**Use of Mercurochrome in Septic Cavities.**—Davis believes that the direct application of mercurochrome-220 soluble to the source of the infection, whether in the peritoneal, thoracic or other cavities, is indicated.

## U. S. Veterans' Bureau Med. Bull., Washington, D. C.

**3:** 525-650 (June) 1927

Late Results of Fractures of Long Bones. J. B. Walker.—p. 525.
Routine Preoperative Preparation. R. D. Maddox.—p. 544.
Mechanism of Neurasthenia Among Ex-Service Men. R. E. Davis.—p. 549.
Neurasthenia: One Hundred Cases. L. W. Day.—p. 559.
Drug Addiction. H. E. S. Antoine.—p. 574.
*Chronic Interstitial Pneumonitis or Bronchiolitis. W. A. Colton.—p. 581.
Roentgenology in Tuberculosis. G. M. Shewalter.—p. 587.
Lipoid Fixation Test of Meinicke. A. Blumberg.—p. 591.
Pulpless Tooth. J. P. Cassity.—p. 598.
Postinfluenzal Pneumonitis Complicated by Gastric Ulcer. J. Rothman.—p. 603.
Infectious Multiple Arthritis Simulating Perthe's Disease. F. L. Biscoe.—p. 606.

**Chronic Interstitial Pneumonitis.**—A definite pulmonary lesion following severe acute influenza and its sequelae is described by Colton by the term bronchiolitis. Basal moisture, negative sputum and a quite typical roentgenogram with iodized oil injections are characteristic of the disease. The prognosis is unfavorable for complete recovery, and the patients have a definite vocational handicap.

## Wisconsin Medical Journal, Milwaukee

**26:** 287-338 (June) 1927

Nonspecific Protein Therapy. E. F. Mueller, Hamburg, Germany.—p. 287.
New Polypharmacy. H. P. Greeley, Madison.—p. 292.
Roentgen Ray as Aid in Gastro-Enterology. J. A. Evans and E. Evans, La Crosse.—p. 294.
Jaw Fractures: Orthodontic Applicances to Immobilize. M. N. Federspiel, Milwaukee.—p. 300.
Loose Bodies in Knee Joint: Surgical Removal. V. F. Marshall and C. C. Reed, Appleton.—p. 304.
Diagnostic Problems. L. M. Warfield, Milwaukee.—p. 308.
Riedel's Strumitis. W. J. Tucker and M. A. Gertz, Ashland.—p. 309.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

## British Journal of Actinotherapy, London

**2:** 41-60 (June) 1927

Influence of Ultraviolet Radiation on Calcium and Phosphorus Metabolism in Various Diseases. J. B. Firth and W. K. Russell.—p. 42.
Efficiency of Carbon Arcs as Sources of Ultraviolet Rays. H. D. Griffith and J. M. Jack.—p. 58.

## British Medical Journal, London

**1:** 1135-1172 (June 25) 1927

Experiences in Bronchoscopy and Esophagoscopy. H. Tilley.—p. 1135.
Normal Cholecystography. F. Davies.—p. 1138.
*Thrombo-Angiitis Obliterans in Women. E. D. Telford and J. S. B. Stopford.—p. 1140.
*Thyrotoxic Myocarditis. J. S. Goodall and L. Rogers.—p. 1141.
*Closure of Abdominal Incisions. F. S. Heaney.—p. 1143.
Nephritis Following Influenza. A. S. Cook.—p. 1143.
Gramophone Needles in Resistant Sinuses. R. E. Hadden.—p. 1144.

**Thrombo-Angiitis Obliterans in Women.**—The interest in the two cases cited by Telford and Stopford lies not only in the rarity of the disease in women, but in the fact that the two patients illustrated very opposite types. In the first case the period between the onset of symptoms and the occurrence of total gangrene was only three months. In this patient the thrombosis had spread throughout the arm with such rapidity as to preclude entirely any successful attempt at collateral circulation. In the second case, the course was extremely chronic. The patient dated her symptoms six years back, and it was evident that the change for the worse had been very slow. While there was no pulse to be felt in either arm, it was plain that plenty of time had been given for the setting up of a good collateral circulation. There was, in fact, evidence that the history of this case was in reality very much longer than six years. The patient stated that at her last confinement both physician and nurse had been surprised to find that a pulse could not be found in either arm; this confinement had occurred no less than sixteen years before.

**Thyrotoxic Myocarditis.**—The electrocardiographic observations in 787 cases of thyroid hearts are given by Goodall and Rogers: 242 cases showed impaired conduction in the bundle of His; 184 cases, a left sided preponderance; 113 cases, a modification of the T wave in the third lead; 108 cases, a right sided preponderance; ninety-one cases, auricular fibrillation; forty-six cases, modification in the T wave in lead II; thirty-three cases, modification in the R-S complex; twenty-three cases, modification in the T wave in lead I; nineteen cases, ventricular extrasystoles; five cases, right branch block, and five cases, auricular extrasystoles.

**Closure of Abdominal Incision.**—Heaney ties the ends of the "figure of 8" suture over an oblong iron wire frame resting on the abdominal wall. The tension of the suture so tied is approximately constant during the two or three weeks it remains in situ. It can be employed for the posterior sheath of the rectus without injury to the muscle fibers. In case of suppuration, free drainage can usually be achieved by removal of the superficial sutures without disturbing the fascial supports which are attached to the frame. The frame, far from being a discomfort, acts as a splint, supporting the abdominal wall in coughing, vomiting or distention.

## Edinburgh Medical Journal

**34:** 321-384 (June) 1927

*Skull of Mongolian Imbecile. D. M. Greig.—p. 321.
*Action of Atropine on Milk Secretion. R. Stockman.—p. 340.
Diabetes Complicating Acromegaly and Pituitrin-Insulin Antagonism. H. L. W. Wemyss.—p. 343.
Diphtheria Prevention Work in Edinburgh. A. Joe.—p. 347.
Congenital Femoral Hernia with Tricornuate Sac. D. S. Middleton.—p. 354.
Case of Oxycephaly. W. J. A. Coldstream.—p. 357.

**Nature of Mongolism.**—Greig concludes from his study that mongolism seems rather to be a defect in growth (fetal) than a defect in development (embryonic).

**Action of Atropine on Milk Secretion.**—Stockman regards the administration of $\frac{1}{100}$ grain (0.6 mg.) of atropine sulphate, hypodermically, morning and evening for the first

seven days after delivery, sufficient to stop the flow of milk in most cases. When it did not do so, a dose of magnesium sulphate was given, after which no milk formed.

## Glasgow Medical Journal

**107:** 329-388 (June) 1927

*Prostatic Cancer with Bone Metastases. A. A. Charteris.—p. 329.
*Gastric Analysis in Diabetes and Glycosuria. E. McPherson.—p. 340.
*Patency of Spinous Processes Simulating Appendicitis. A. Turnbull.—p. 351.

**Prostatic Cancer with Bone Metastases.**—In Charteris' case, the pelvis was the seat of extensive malignant disease, originating in the prostate and extending into the base of the bladder, as well as outward to involve directly the lateral walls of the pelvis and the ureters. Some of the lymph glands along the iliac vessels were enlarged and evidently the seat of tumor growth; both lungs were the seat of early carcinomatous infiltration by small, whitish, secondary growths, mainly situated near the pleural surfaces. The ribs contained multiple secondary growths scattered through their substance and, in many instances, involving the whole thickness of the bone. In the upper third of the left femur there was extensive osteosclerosis with thickening of the shaft and obliteration of the medullary cavity by dense ivory trabeculae, while in the remainder of the bone many whitish nodules of tumor growth were recognized. The right femur was in a similar state, except that the process had not advanced so far and was less diffuse. The lumbar vertebrae and vault of the skull also contained metastases.

**Gastric Analysis in Diabetes.**—In ten cases of severe diabetes mellitus examined by McPherson, the four most severe showed complete achlorhydria; four others showed hypochlorhydria. Thus, 80 per cent had deficiency in the gastric secretion of hydrochloric acid. After prolonged insulin treatment of severe diabetes in a young subject, the gastric analysis yielded a normal result. The administration of dilute hydrochloric acid by the mouth has been found of practical value, when combined with insulin treatment, in diabetic patients with hypochlorhydria. In forms of glycosuria in which the blood sugar was not persistently high, no alteration was found in the gastric secretion of hydrochloric acid. It is suggested that when a case of hyperchlorhydria undergoes apparently spontaneous cure, this may be an indication of commencing failure in the carbohydrate mechanism.

**Patency of Spinous Processes Simulating Appendicitis.**—Turnbull relates the case of a woman, aged 35, who suffered with definite attacks of pain in the stomach, right side and small of the back, associated with sickness. There was evidence of curvature of the spine in the lumbar region, the lower lumbar spines being rotated to the left. On roentgenray examination some rotation, both of the upper lumbar vertebrae and of the sacral bone, was in evidence. The fourth and fifth lumbar vertebrae and the first sacral vertebra were abnormal. The spinous processes of the second and third lumbar vertebrae were single and those of the fourth and fifth lumbar were double, with a clear space intervening between the two osseous halves. The case illustrates the relation between the spinal region and abdominopelvic symptoms.

## Indian Medical Gazette, Calcutta

**62:** 299-358 (June) 1927

Geographic Distribution of Some Diseases of India. J. W. D. Megaw and J. C. Gupta.—p. 299.
Spurlike Projections on Bones. J. H. Barret.—p. 313.
*Incidence of Primary Carcinoma in India. P. V. Gharpure.—p. 315.
*Transmission of Plague by Xenopsylla Astia and X. Cheopis. A. N. Goyle.—p. 317.
Constants of Pure Cow Ghee. B. B. Brahmachari.—p. 318.
Manufacture of Soda Water from Chalk-Derived Water of Deep Tube Well. N. L. Banerjee.—p. 322.
*Electrophonoide Method of Treating Deaf. F. D. Bana.—p. 324.
*Action of Antimony Compounds on Blood Serum: New Test for Kala-Azar. R. N. Chopra, J. C. Gupta and J. C. David.—p. 325.
Case of Compound Fracture of Skull. M. H. Abdurrazak.—p. 327.
Phenol and Magnesium Sulphate Injections in Treatment of Tetanus. P. B. Rau.—p. 328.

**Incidence of Primary Carcinoma in India.**—During a fifty year period, Gharpure found only thirty-six cases of primary carcinoma of the liver, stomach, pancreas and gallbladder among about 6,000 cases.

**Transmission of Plague.**—Goyle is inclined to believe that the male flea is a more efficient vector of plague than the female one.

**Electrophonoide Method of Treating Deaf.**—In Bana's opinion, this method promises good results, and so far is a distinct advance on any stereotyped method of treating the deaf.

**Test for Kala Azar.**—Chopra et al. assert that the precipitation produced by the interaction of organic compounds of antimony, especially the urea compounds, with kala-azar serum appears to be a specific reaction, and could be utilized as a test for the diagnosis of this disease. Sixteen out of nineteen kala-azar serums which gave positive results with this test also gave a positive aldehyde reaction (Napier) within a few minutes, and the three others were positive after twenty-four hours. The reaction of kala-azar serum in the two tests, therefore, appears to run parallel.

## International Journal of Psycho-Analysis, London

**8:** 133-310 (April) 1927

Psychologic Consequences of Anatomic Distinction Between Sexes. S. Freud.—p. 133.
Case of Borrowed Sense of Guilt. H. Lampl.—p. 143.
Hysterical Psychosis in Statu Nascendi. W. Reich.—p. 159.
Lay Analysis. E. Jones and others.—pp. 174-279.

## Journal of Physiology, London

**63:** 1-96 (June 7) 1927

Contractility of Lacteals: II. H. Florey.—p. 1.
Synergism Between Alcohols and Other Drugs. L. M. Pickford.—p. 19.
Influence of Temperature on Mechanical Responses of Unstriated Muscles. F. R. Winton.—p. 28.
*Hydrogen Ion Concentration of Muscles of Cat. K. Furusawa and P. M. T. Kerridge.—p. 33.
Action of Pilocarpine. T. B. Heaton and M. H. Mackeith.—p. 42.
Reaction of Smooth Muscle to Hydrogen Ion Concentration. B. A. McSwiney and W. H. Newton.—p. 51.
Spinal Reflexes of Skate. C. H. Craw.—p. 61.
Motor Twitch and Reflex Inhibition of Tendon Jerk of M. Supraspinatus. D. E. Denny-Brown and E. G. T. Liddell.—p. 70.
Negative Pressure Pulmonary Ventilation in Heart Lung Preparation. I. De Burgh Daly.—p. 81.
Method of Propelling Air Round Small Enclosed Circuits. F. M. Haines.—p. 94.

**Hydrogen Ion Concentration of Muscles.**—The hydrogen ion concentration of the skeletal, cardiac and uterine muscles of the cat under nearly resting conditions has been determined by Furusawa and Kerridge, who have also studied the concentration of skeletal and cardiac muscles after the electrical stimulation of fatigue, and in rigor mortis. Titration curves of minced skeletal, cardiac and uterine muscles have been obtained. The mean dissociation constants of the acids acting as buffers in the physiologic range of $p_H$ are $10^{-6.45}$, $10^{-6.33}$ and $10^{-6.80}$ for skeletal, cardiac and uterine muscles, respectively.

## Journal of State Medicine, London

**35:** 311-372 (June) 1927

Intestinal Infections in Relation to Personal Health and Disease. W. Willcox.—p. 311.
Organization and Administration of County Schemes for Prevention of Tuberculosis. G. L. Cox.—p. 324.
Difficulties in Campaign Against Tuberculosis. B. T. J. Glover.—p. 333.
Incidence of Tuberculosis in Royal Navy. C. H. Dawe.—p. 341.
*Ionization Treatment for Chronic Discharging Ears. R. Cramb.—p. 349.
Flying in Tropical Climates, with Particular Reference to Sun Glare. T. S. Rippon.—p. 355.
Industrial Accident Prevention. C. G. Ingall.—p. 360.

**Ionization Treatment of Discharging Ears.**—Cramb uses a solution of zinc sulphate—5 Gm. of the salt in 1,000 cc. water—and in order to prevent osmotic changes between the solution and the contents of the tissue cells, a nonelectrolytic substance, glycerin, is added (57.6 cc.), thus rendering the solution isotonic with the tissues.

## Journal of Tropical Medicine and Hygiene, London

**30:** 137-152 (June 1) 1927

Coconut Palm: Potentialities in Providing Breeding Places for Mosquitoes. A. R. Lester.—p. 137.
Ross to Manson Letters of 1895-1899: Missing Portions of Two Important Letters. R. Ross.—p. 145.

## Lancet, London

**1:** 1329-1380 (June 25) 1927

Meningiomas Arising from Olfactory Groove: Removal by Electrosurgery. H. Cushing.—p. 1329.
*Pituitary Tumors. O. Hirsch.—p. 1339.
*Suppurative Arthritis Due to Hemophilic Bacteria. J. F. Taylor.—p. 1341.
*Treatment of Impetigo Contagiosa by Ultraviolet Rays. J. B. Ellison.—p. 1343.
*Ultraviolet Rays in Treatment of Chronic Ulceration. G. M. Wauchope.—p. 1345.
Splenectomy and Complications in Egyptian Splenomegaly. F. A. Sayed.—p. 1345.

**Ocular Type of Pituitary Tumors.**—Hirsch discusses the symptoms produced by the ocular type of pituitary tumor. This type is characterized by visual disturbances without any striking constitutional disturbance. On inquiry, however, the patients will nearly always say that there has been some disorder in the function of the genital glands, such as impotence or amenorrhea. On careful examination, it is generally possible to find signs which accompany tumors of the hypophysis, such as loss of the beard or of axillary and pubic hair, disturbance of the sweat secretion, somnolence, mental indifference and low body temperature. In women it is often found that milk can be expressed from the breasts. The most important part of this syndrome is the visual disturbance. This reveals itself in a diminution of the visual acuity and field. The latter appears most often in the form of bitemporal hemianopsia, and this must be looked on as almost pathognomonic of hypophyseal tumors.

**Suppurative Arthritis Due to Hemophilic Bacteria.**—Taylor reports three cases of suppurative arthritis in which organisms conforming to the *B. influenzae* type were recovered in pure culture. Only nine similar cases have been recorded since 1899. The ages of these three patients were 7, 18 and 8 months, respectively.

**Ultraviolet Ray Treatment of Impetigo Contagiosa.**—Ellison gave ultraviolet ray treatment, using the Cooper-Hewitt direct air-cooled quartz mercury vapor arc lamp, in forty-one cases of impetigo contagiosa. He says that the rays have a slight, though definitely curative, effect. General exposure is safer and more efficient than local exposure at short range in this condition.

**Ultraviolet Ray Treatment of Chronic Ulceration.**—By means of ultraviolet irradiation, Wauchope obtained improvement under somewhat difficult circumstances in three cases of chronic ulceration of the legs when other methods employed had failed.

## Medical Journal of Australia, Sydney

**1:** 873-808 (May 28) 1927

Epilepsy in Childhood. A. W. Campbell.—p. 774.
Id.: G. P. U. Prior.—p. 775.
Irritable Ulcer of Leg or Malleolus: Cure by Operation. C. E. Corlette.—p. 782.
Operation for Bunion. G. A. Hagenauer.—p. 787.
Gas Infections of Uterus with Jaundice Due to B. Welchii Following Abortions. R. Magarey, J. B. Cleland and J. G. Sleeman.—p. 787.
*Partial Rupture of Uterus During Pregnancy with Fatal Intraperitoneal Hemorrhage. J. B. Cleland.—p. 790.
*Purulent Infiltration in and Around Thyroid. J. B. Cleland.—p. 790.

**1:** 809-842 (June 4) 1927

Joint Tuberculosis. R. A. Hibbs and A. De F. Smith.—p. 810.
Blair Bell's Lead Treatment of Malignant Disease. B. H. Swift.—p. 812.
Treatment of Chronic Otorrhea by Zinc Ionization. G. A. D. McArthur.—p. 818.
Eye Diseases of Dietetic Origin: Ophthalmia. S. J. Cantor.—p. 822.
Urticaria Pigmentosa in Adults. K. G. Colquhoun.—p. 824.
Optic Neuritis as Complication of Whooping Cough. G. H. Hogg.—p. 825.

**1:** 843-876 (June 11) 1927

Lister Centenary Oration. J. L. Gibson.—p. 844.
Address on Lord Lister. C. E. Goddard.—p. 850.
Hospital Question in New South Wales. T. Hamilton.—p. 856.
Treatment of Hiccup Occurring During Anesthesia. S. J. Cantor.—p. 858.
Chorion Epithelioma. C. E. D'Arcy.—p. 858.
Subacute Bacterial Endocarditis. G. A. Kaye and N. B. White.—p. 859.
Pseudohermaphroditism Occurring in Two Children of One Family. W. Davis.—p. 860.

**Partial Rupture of Pregnant Uterus.**—In the case cited by Cleland, the rupture of the uterus was only partial, affecting just the serous and outer aspects of the uterine wall. The tear caused fatal hemorrhage from a subserous vein. The uterus was greatly distended by hydramnios, and the placenta was much flattened out, constituting a partial placenta praevia. There was no evidence that the site of rupture was diseased. It would seem that the uterus was overdistended with the increase of fluid, and that its wall was thinned in consequence. Vomiting, probably in sudden attacks and of a forcible nature, was apparently the exciting cause of a partial rupture of the wall, which passed through some small veins from which fatal intraperitoneal hemorrhage occurred.

**Purulent Infiltration of Thyroid.**—Three cases are reported by Cleland. In two there was a diffuse purulent exudate due to streptococci, but without much edema and congestion. In the third case a diffuse purulent infiltration of the thyroid (quite unsuspected) was part of a pyemia of puerperal origin due to *Staphylococcus aureus*.

## Practitioner, London

**118:** 273-340 (May) 1927

Rectal Pain and Inflammation. C. Gordon-Watson.—p. 273.
Resection of Rectum and Colon Through Anal Sphincter: Postoperative Results. C. Roux.—p. 284.
*Quinidine Therapy in Cardiac Disorders. F. W. Price.—p. 294.
Occipitoposterior Position of Vertex: Survey of 750 Cases. D. Miller.—p. 302.
Relationship of Doctor to Expectant Mother. A. E. Chisholm.—p. 312.
Extraction of Lens Entire in Capsule Without Iridectomy. D. S. Khanha.—p. 321.
Brighton as Health Resort. D. Forbes.—p. 322.
Hastings as Health Resort. G. R. Bruce.—p. 326.
Margate as Health Resort. R. McCombe.—p. 329.

**Quinidine in Cardiac Disorders.**—Price has employed 5 grains (0.324 Gm.) of quinidine sulphate once daily in a number of cases of paroxysmal tachycardia, in the intervals between the attacks, to prevent their recurrence, and it has been successful in most of them.

## Tubercle, London

**8:** 401-452 (June) 1927

Defensive Mechanism in Tuberculosis: Physical and Chemical Aspect. E. Obermer.—p. 401.
Experiments with Oleovaccine Tuberculosis in Attempted Immunity. W. T. Munro.—p. 410.
Experimental Tuberculous Infection of Rats on Varied Diets. L. B. Lange.—p. 422.

## Gann, Tokyo

**21:** 1-28 (June) 1927

*Formation of Antibody Against Experimental Carcinoma in Mouse. K. Yamagiwa, S. Tsukahara and S. Morimoto.—p. 1.
*Tumor of Mesentery. H. Oka and S. Miyairi.—p. 17.
Influence of Fifty-Eight Chemical Combinations on Cancer. F. Ishiwara.—p. 20.
*Retroperitoneal Teratoma in Boy. M. Seki.—p. 20.
*Case of Ovarian Dermoid Cyst. T. M. Wang.—p. 27.

**Formation of Antibody Against Experimental Cancer.**—Yamagiwa et al. assert that the intravenous injection of extract of spleen made from the spleen of a guinea-pig that has been inoculated with an emulsion of mouse breast carcinoma has an inhibitory effect on the growth of a transplanted tumor. The effect of each injection is of about two weeks' duration.

**Tumor of Mesentery.**—Clinically, the tumor in the case cited by Oka and Miyairi caused an infrapapillary duodenal stenosis, and aroused the suspicion of being a carcinoma with metastases in the mesenteric lymph nodes. The microscopic appearance of the tumor was that of a reticuloendothelial tumor, resembling Komocki's sarcoma reticulare. The site of the primary tumor could not be determined.

**Retroperitoneal Teratoma.**—Seki's patient was 22 months old. The tumor was as large as an infant's head and cystic, arising from the inner aspect of the left anterior abdominal wall. It contained some cartilage and bone, but no teeth or hair. On microscopic examination the tissues were found to be fully developed embryonal layers with anlage of the various organs and systems.

**Ovarian Dermoid Cyst.**—In a four months' pregnancy, Wang's patient developed pernicious vomiting and died. At the necropsy, an ovarian dermoid cyst was found.

## Bulletins de la Société Médicale des Hôpitaux, Paris

**57:** 847-916 (June 16) 1927. Partial Index

Serum and Vaccine Treatment of Bronchopneumonia in Children. L. Guillemot and H. Grenet.—p. 850.
Appearance of Herpes Zoster on an Amputation Stump. A. Cain and Layani.—p. 863.
*Congenital Aortic Stenosis with Hemogenia. L. Babonneix et al.—p. 866.
*Pituitary Extract in Treatment of Diabetes Insipidus. F. Rathery et al. —p. 871.
*Primary Meningitis Caused by Mumps Virus. R. J. Weissenbach et al. —p. 881.

**Case of Aortic Stenosis Associated with a Hemogenic Syndrome.**—The diagnosis of aortic stenosis was based on clinical and roentgenologic examination in the case described by Babonneix, Oury and Widiez. Hematuria, hematemesis, bleeding from the nose and from the gums were the manifestations of hemogenia, confirmed by the bleeding and the coagulation time. The explanation is that during intrauterine life a dystrophic, infectious, or syphilitic process affected the primary cardiac tube, the blood-forming tissues and probably the endocrine glands. Association of congenital dystrophic diseases of the blood and of the vessels is the particular feature of the case. Occurrence of hemogenia in a man is also rare. The authors are not aware of a similar case in modern medical literature.

**Extract of Posterior Pituitary Lobe in Treatment of Diabetes Insipidus.**—Rathery, Marie and Maximin report two cases in which this treatment was used with good results. There was evidence that extract of the posterior pituitary lobe only is effective. The extract should be introduced beneath the skin or, still better, into the nasal cavity. In one case, polyuria, ranging from 12 to 22 liters of urine a day, decreased to 1,600 Gm. Daily injections of from 0.5 to 2 cc. of the extract were used. In another case, administration of a daily dose of 0.15 Gm. of the pituitary powder into the nose reduced a polyuria of about 4 liters to 1,500 or 1,000 Gm. The posterior pituitary lobe appears to contain a substance acting on water metabolism and on diuresis. The action is rapid; a diuresis of 22 liters was reduced to 3 liters in a few hours. Differing from Ambard, the authors believe that the pituitary extract acts on the kidneys. Beside diabetes insipidus of infundibular origin, there is a diabetes insipidus of pituitary origin.

**Primary Meningitis Caused by Mumps Virus.**—This case, observed by Weissenbach, Turquéty and Durupt, was in a boy, aged 11. The disease started with headache, fever, vomiting, stiffness of the neck and Kernig's sign, testifying to acute meningitis. The meningeal phenomena disappeared in three days. Then a painful swelling of the right parotid gland appeared, persisting for four days. This fact, together with the results of examination of the cerebrospinal fluid, allowed the real character of the disease to be established. The infection did not become localized elsewhere. A slight recurrence of the meningeal reaction was noted on the eleventh day. Three analogous cases are cited. The authors query whether some cases of primary meningitis of uncertain origin are not caused by the mumps virus. Inflammation of the parotid glands may pass unnoticed or may even be missing.

## Comptes Rendus de la Société de Biologie, etc., Paris

**96:** 821-904 (April 1) 1927. Partial Index

*Action of Pituitary Extract on Glycemia. M. Labbé and P. Renault.—p. 823.
*Influence of Thyroid Extract on Metamorphosis in Frogs. G. Cotronei. —p. 831.
*Research on the Passage of Bacteriophage Through Placenta. E. Grasset. —p. 839.
*Fluorin Cachexia. H. Cristiani and P. Chausse.—p. 842.
*Fluorin Poisoning. H. Cristiani and P. Chausse.—p. 843.
Origin of Pigments in Chironomids' Larvae. M. Comas.—p. 866.
Action of Histamine on Gastric Secretion and Motility. F. Fonseca and A. de Carvalho.—p. 873.
The Bone Marrow in Hemolytic Jaundice. P. Escudero and M. E. Varela. —p. 898.
Microglia Reaction in Tuberculous Meningo-Encephalitis. C. M. Ramirez Corria.—p. 902.

**Action of Pituitary Extract on Glycemia.**—Labbé and Renault experimented on rabbits and on man. In the latter an injection of extract of the posterior lobe of the pituitary caused an insignificant increase in the blood sugar. In further experiments, the injection was combined with ingestion of glucose. This was followed by hyperglycemia equal to that from ingestion of glucose alone.

**Action of Thyroid Extract on Metamorphosis in Frogs' Larvae.**—Cotronei reports the results of his previous and recent experiments, in which various parts of the cerebrospinal axis were removed in larvae of frogs. After the operation, the larvae were fed thyroid extract. The metamorphosis ran its normal course. The author presumes that other endocrine glands may intervene similarly in the relation of nervous and humoral phenomena.

**Researches on the Passage of Bacteriophage Through the Placenta.**—Grasset injected gravid rabbits and guinea-pigs with a filtrate of colon bacillus bacteriophage. Examination revealed the bacteriophage in the maternal blood; it was absent in the fetal blood. The results were the same when staphylococcus bacteriophage was used in the experiments: Evidently, like toxins and anatoxins, the bacteriophage does not traverse the placenta. This fact contrasts with the easy passage of antitoxins through the placenta.

**Fluorine Cachexia and Fluorine Poisoning.**—In their researches on guinea-pigs, Cristiani and Chausse found that the toxicity of sodium siliconfluoride was several times that of fluoral. With very small doses of fluoral, mixed with the forage, two or three years were required to provoke cachexia. Gravidity appeared to aggravate the fluorine cachexia in the animals.

## Médecine, Paris

**8:** 405-480 (March) 1927

Syncopal Form of Paroxysmal Tachycardia. E. Donzelot.—p. 406.
Myocardial Hypertrophy with Valvular Defects. A. Dumas.—p. 411.
The Heart in Obesity. E. Bordet.—p. 417.
Paroxysmal Forms of Complete Arrhythmia. M. Mouquin.—p. 420.
Cardiac Rhythm and the Coronary Circulation. E. Géraudel.—p. 426.
Hemoptysis in Cardiac Diseases. R. Prieur.—p. 431.
Old and New Drugs in Treatment of Arterial Hypertension. L. Pellissier.—p. 435.
Remarks on the Ureosecretory Constant. H. Chabanier.—p. 441.
Modern Theory of Nephritic Uremia. L. de Gennes.—p. 447.
Hemolytic Anemia of Splenic Origin. C. Aubertin.—p. 456.

**8:** 485-560 (April) 1927

Obstetrics and Gynecology in 1926-1927. L. Devraigne.—p. 485.
Note on Vomiting in Pregnancy. L. Demelin.—p. 497.
Errors of Diagnosis in Cases of Pelvic Tumor. P. Brocq.—p. 503.
Syphilis and Fetal Monstrosity. L. Devraigne and Lotte.—p. 506.
Radium Plus Surgery in Treatment of Cancer of the Uterine Cervix. G. Labey.—p. 511.
Drainage and Tamponnage in Abdominopelvic Surgery. P. Descomps.—p. 515.
Generalized Peritonitis Consequent on Induced Abortion. J. C. Bloch. —p. 522.
Chronic Cervical Metritis and Parturition. A. Guillemin.—p. 528.
Lipiodol in Examination of the Uterus and Adnexa. A. Ameline.—p. 536.
Cure of Sterility of Gonococcus Origin in Women. P. E. Roucayrol.—p. 543.

**8:** 565-640 (May) 1927

*Pathogenesis of Asthma. F. Bezançon.—p. 565.
*Treatment of Asthma. F. Bezançon.—p. 580.
Asthma of Ovarian Origin. S. I. de Jong.—p. 595.
Asthma and Related Diseases. A. Jacquelin.—p. 601.
Vagosympathetic Disturbances in Asthma. E. Bernard.—p. 608.
Physiotherapy of Asthma. E. and H. Biancani.—p. 624.

**Pathogenesis and Treatment of Asthma.**—Bezançon discusses at length the diathetic, the nervous and the anaphylactic theories of asthma. In his opinion, none of them alone can explain the occurrence of asthma. Lesions of the respiratory tract play an important part in the pathogenesis. The rôle of disturbances in the nasal cavity or of diseases of the tracheobronchial glands or of a syphilitic process in the mediastinum is well known. Bezançon emphasizes the significance of pulmonary sclerosis connected with bronchopneumonia, with war gas poisoning, or, especially, with tuberculosis. The cheesy form of tuberculosis is never observed in asthma. In another paper, Bezançon reviews the treatment of asthma at the approach of the attack, during the attack and between attacks. He concludes that epinephrine and belladonna are effective against the attack while specific or nonspecific antianaphylactic treatment (the latter under the form of peptone) is indicated in the interval between attacks.

## Presse Médicale, Paris

**35:** 785-800 (June 22) 1927. Partial Index

*Primary Localization of Tuberculosis in Mediastinal Glands. A. Jousset. —p. 785.
Therapeutic Value of the Mercurial Diuretic "440 B." L. Pellissier et al.—p. 789.

**Primary Location of Tuberculosis in Glands of the Mediastinum.**—Jousset argues against Laënnec's doctrine, sustained by many authorities, that the pulmonary alveoli are invaded first in pulmonary tuberculosis. Lesions of the mediastinal glands, frequently present in children dead from pulmonary tuberculosis, were regarded by Parrot as secondary. In Jousset's opinion, the bronchial glands are the first and sometimes the sole localization of tuberculosis in children. He cites Laroux's statistics, including 185 cases in which the tuberculous process was found exclusively in the mediastinal glands. The author inoculated 6000 guinea-pigs with tuberculosis. Lesions of the lung were always associated with lesions of the bronchial glands. A series of the animals were injected subcutaneously with a dose of tubercle bacillus culture sufficient to cause death in three months. They were killed six weeks after the injection. Tubercle bacilli were found in the bronchial glands; the lungs appeared intact, free from bacilli. Jousset believes that the process of pulmonary tuberculosis is probably the same in man.

**35:** 801-816 (June 25) 1927

Methylic Antigen in Treatment of Tuberculous Glands. L. Bernard et al.—p. 801.
*General Reactions in Pyelitis. Lévy-Solal and Misrachi.—p. 803.
Epilepsy in Connection with Dyspepsia. R. A. Gutmann.—p. 804.
A Note on "Sanocrysin." M. Jaquerod.—p. 806.

**Study of General Reactions Caused by Pyelitis.**—General infection occurs in pyelitis. This complication, Lévy-Solal and Misrachi say, is rare. In collaboration with Dalsace the authors inoculated rabbits with colon bacilli by the ureteral route. Blood subsequently withdrawn from the animals' hearts contained the bacilli. The results agreed with those reported by Magoun. A case is described which occurred in a woman, aged 27, who presented phenomena of toxemia in connection with pyelitis. In children, septicemia with pyelitis may be associated with a stricture in the ureteral orifices or at the point of juncture of the abdominal and the pelvic portions of the ureter. It may also coincide with a contraction of the neck of the bladder. In adults, the relation between urinary stasis from various causes and general infection from pyelitis, is a fact. In certain cases pyelitis and ureteritis develop secondarily to a general infection.

**35:** 817-832 (June 29) 1927

The Value of Spinal Anesthesia. L. Bérard.—p. 817.
Virtual Epinephrine. G. Mouriquand and A. Leulier.—p. 818.
Cholecystography and Visualization of the Gallbladder. A. Fraikin and I. M. Burill.—p. 820.
*Ligation Plus Injections in Treatment of Varices. F. d'Allaines and H. Roseau.—p. 825.

**Ligation of Varicose Trunk Combined with Injection of a Sclerosing Substance in Treatment of Varices.**—D'Allaines and Roseau obtained good results from this treatment in twelve cases that remained under observation for two years. From 15 to 25 cc. of a 30 per cent solution of a salicylate were injected into the diseased veins. A dose of 30 cc. of the solution, representing 9 Gm. of salicylate, was never exceeded. The technic for ligation of the varicose trunk is given. Most of the patients were cured after a single injection. In severe cases the whole procedure was repeated a week later, or the first operation was supplemented by a few injections. D'Allaines and Roseau emphasize that with the combined method the cure is more rapid, and sloughing, that sometimes occurs from an injection alone, is averted. The treatment is without result in varices with phlebitis or phlebolite, or in congenital varices.

## Schweizerische medizinische Wochenschrift, Basel

**57:** 585-608 (June 18) 1927

Roentgen-Ray Dosage. H. R. Schinz.—p. 585.
*Injuries from Gynecologic Irradiation. W. Fürst.—p. 591.
Isacen in Pediatrics. A. Hottinger.—p. 597.
Abortive Treatment of Colds. J. Bonjour.—p. 598.

**Injuries from Gynecologic Irradiation.**—Fürst deals with roentgen-ray injuries from the viewpoint of a gynecologist. Temporary roentgen-ray sterilization constitutes an injury in the wider sense. He is opposed to it on principle and refuses to apply even small doses to the ovaries in juvenile metropathies. He quotes Sellheim: "We have no right to experiment on the progeny of other people." Roentgen-ray sterilization should either be permanent or it should be omitted. A reliable diagnosis must be made before instituting any roentgen-ray treatment. If an operable malignant tumor is overlooked, the roentgen-ray treatment involves an injury to the patient. If a myomatous uterus with bleeding polypi is irradiated, the hemorrhages will continue. He also discusses the direct injuries due to omission of filters, shutters and spontaneous changes in the efficiency of the apparatus.

## Policlinico, Rome

**34:** 883-918 (June 20) 1927

Plasmochin. G. Memmi and W. Schulemann.—p. 883.
Myxosarcoma Simulating Liver Abscess. U. Beggiato.—p. 885.
Fatal Hemoperitoneum from Latent Cancer of the Liver. R. A. Sala. —p. 889.

## Riforma Medica, Naples

**43:** 577-600 (June 20) 1927

Treatment of Tetanus. A. Martiri.—p. 577.
Hemostat for Large Vessels. P. Leone.—p. 584.
Diagnosis of Cerebral Abscess of Otitic Origin. P. Russi.—p. 585.
Xerostomia.—p. 589.
*Nephritis from Mercuric Chloride. V. Schifani.—p. 598.

**Nephritis from Mercuric Chloride.**—Schifani recommends daily intravenous injections of about 150 cc. of a 25 per cent solution of dextrose (0.5 Gm. of dextrose per kilogram of body weight). Under this treatment, his patient recovered from a grave poisoning, with anuria lasting for six days.

## Archivos Españoles de Pediatría, Madrid

**11:** 257-320 (May) 1927

Kala-Azar in Spain. F. Fernández Martínez and J. Garcia del Diestro. —p. 257.
Herpes Zoster and Chickenpox. C. Sáinz de los Terreros.—p. 290.
*Diagnosis of a Tumor. F. Cirajas.—p. 295.

**A Foreign Body Resembling Sarcoma.**—The symptoms, vague history and shape of an intramammary tumor in a child suggested sarcoma. When Cirajas operated, the growth proved to be a mere abscess caused by a piece of wood, broken into four splinters.

## Archivos do Instituto Vital Brazil, Niteroi

**4:** 92-145 (April) 1927

*New Bacillus of Dysentery. J. Ortiz Patto.—p. 92.
Treatment of Chancroid by Streptobacillus Filtrate. A. Fraga.—p. 105.
Treatment of Strangles. Miguelote Vianna (M.) and L. Carneiro Vianna. —p. 113.
Prevention of Rabies. Miguelote Vianna.—p. 123.
Prevention of Meningococcus Shock. A. de Assis.—p. 137.

**An Anomalous Bacillus of Dysentery.**—The organism described by Ortiz had been isolated from a fatal case of dysentery. Its fermentative characteristics place it among Flexner's bacilli, while its agglutinating properties agree better with those of the His group. Altogether, the organism represents a transition type between these two groups.

## Estudios Médicos, Murcia

**5:** 51-131 (March) 1927

*"Sanocrysin." J. Codina Castellvi.—p. 51.

**"Sanocrysin" in Pulmonary Tuberculosis.**—In this issue Codina brings to an end his thorough study of the action of "sanocrysin" in tuberculosis of the lungs. His records include forty-seven patients of both sexes, from 16 to 63 years old. The duration of the disease varied from two months to eight years. In the advanced or cachectic stage, with or without fever, "sanocrysin" is useless. The only possible contraindication in the respiratory system is a history of recurrent hemoptysis. Persistent diarrhea, intestinal tuberculous involvement or renal injury are positive contraindications. In short, "sanocrysin" is one more drug in the treatment of pulmonary tuberculosis, perhaps so far the most efficient one.

What remains in doubt is the persistence of the results, the possible decrease of the dosage and the advantages of using other catalytic stimuli during intervals.

## Gaceta Médica de México, Mexico City

**58:** 247-320 (May) 1927. Partial Index

*Spring Conjunctivitis. J. de Jesus González.—p. 247.
Misconceptions as to the Appendix. G. Malda.—p. 277.
Oxgenography. Vergara Lope.—p. 291.

**Corneal Complications in Vernal Conjunctivitis.**—Spring conjunctivitis, states González, is far from being as mild as is suggested by the textbooks. Among 65,000 patients with eye lesions seen by him, only fifteen suffered from keratoconus, and four of these, i. e., more than 25 per cent, belonged to ninety-one cases of vernal conjunctivitis. Among the ninety-one cases, corneal complications of all kinds were present in fully 30 per cent. González believes that the term exuberant perikeratoconjunctivitis, suggested by the Mexican ophthalmologist Carmona for the condition, is far better and more accurate than the present name.

## Medicina Argentina, Buenos Aires

**6:** 223-270 (May) 1927. Partial Index

*Leishmaniasis. A. A. da Matta.—p. 237.
Pernicious Anemia. C. Andre.—p. 240.
*Intestinal Parasites. B. Penna.—p. 255.
Reformatories for Alcoholics. V. Delfino.—p. 256.

**Classification of South American Leishmaniasis.**—Practically, Matta argues, the most reasonable division of leishmania infections is into two large groups: tegumentary, including cutaneous, mucocutaneous and orificial types, and visceral. Local names, such as buba, bouba and frambesia, should be discarded as misleading. *Leishmania brasiliensis* may cause any one of the three tegumentary types. The ulcerous type is most contagious, but Matta saw a patient with fifty-one sores in various stages who never developed any mucous membrane or cavitary manifestations. Genital involvement is rare and he has seen only one case of vulvovaginitis. In any cavity the course is rapid, cancer-like. An important fact for diagnostic purposes—verified in 103 cases—is that leishmaniasis does not attack the nasal bones. Another valuable differential sign is that any ulcer in the nose or lips may be considered as yaws if it does not extend to the mucous membrane. Kala-azar so far has not been seen in South America.

**Treatment of Intestinal Parasitic Infestation.**—Penna pleads for a simple method of treatment, as with pills or tablets, which could be readily used every year in patients with intestinal worms. In South America three worms, ascaris, trichuris and hookworm, are usually associated. A preparation including beta-naphthol and wormseed with an arsenical seems to have had both specific and tonic results.

## Medicina de los Niños, Barcelona

**28:** 129-160 (May) 1927

Surgery in Poliomyelitis. M. Miró.—p. 141.
*Multiple Sclerosis. F. Pons Navarro.—p. 152.

**Multiple Sclerosis of Syphilitic Origin.**—Multiple sclerosis is rare in children. Pons' case was in a girl, aged 6. Syphilis was apparently a factor in the etiology; the patient has improved somewhat under arsenical and electric treatment.

## Revista de Biologia e Hygiene, São Paulo

**1:** 1-113, 1927

With English Abstracts of Papers

*Study of Coagulation. V. Brasil and J. Vellard.—p. 5.
*Complement Fixation in Leprosy. J. M. Gomes.—p. 17.
Bilocular Heart. Cunha Motta and J. R. Meyer.—p. 39.
Milk Control with Ultraviolet Rays. G. de Paula Souza.—p. 52.
*Blood Coagulation. J. R. Pereira.—p. 56.
Action of Sodium Oxalate in Vivo. Cunha Motta.—p. 64.
Chronic Endarteritis. J. R. Meyer.—p. 69.
*Roaches and Lamblia. S. B. Pessoa and C. Corrêa.—p. 90.

**Changes in the Coagulating Power of the Blood from Immunization.**—Brasil and Vellard summarize their experiments. Under the influence of the immunizing process and regardless of the kind of antigen used or the mode of introduction, the coagulating power of the blood serum decreases rapidly when antibodies appear, becoming afterward stabilized below the normal level. The coagulability of the plasma is less influenced and the changes are more irregular. There is no quantitative relation between the decreased coagulating power of the serum and the development of antibodies. The measure of the coagulating power may offer a basis for the selection of animals for production of antitoxin. The best would be those with highest coagulating power. The determination of specific anticoagulins in the plasma of animals immunized against snake poisons affords a simple and ready method of judging the antitoxic power of serum. On the other hand, the measure of the specific anticoagulating power of serum does not give reliable results, as it is influenced by the normal coagulating power of the serum.

**Complement Fixation in Leprosy.**—See Rio de Janeiro Letter, THE JOURNAL A. M. A., July 2, 1927, p. 45.

**Anticoagulating Substance in the Blood Serum.**—According to Pereira's experiments, the blood serum of the horse, the toad and perhaps other animals contains a substance inhibiting completely or partially the coagulant action of horse blood serum on the same animal's plasma treated with sodium fluoride. This substance, named for the time being X, is not soluble in alcohol, ether or acetone, but is soluble in distilled water and in sodium chloride solution. It is also thermostable. Its chemical structure seems to be complex, including colloids and crystalloids.

**Spread of Lamblia Cysts by Roaches.**—Giardias are common in the human intestine at São Paulo. Pessoa and Corrêa found them in 20.8 per cent of 216 fecal specimens and in the feces of three out of sixteen infants examined. They experimented with the three kinds of cockroaches most common in São Paulo: Phyllodromia, Panchlora and Periplaneta. After feeding the insects, in their three stages of larva, nymph and adult, with giardias, they found apparently live cysts in the feces. The greater number were found forty-eight hours after the feeding and almost none at the end of seven days. Under experimental conditions, roaches may also disseminate cysts through regurgitation.

## Revista Esp. de Obstet. y Ginecología, Madrid

**12:** 193-240 (May) 1927

*Mistakes in the Diagnosis of Extra-Uterine Pregnancy. J. Botella.—p. 193.
Artificial Fecundation. E. Macias de Torres.—p. 199.
Auscultation and Recording of Fetal Heart Tones. J. A. Beruti and M. Mújica.—p. 205.

**Mistakes in the Diagnosis of Extra-Uterine Pregnancy.**—Botella describes two cases to illustrate the pitfalls surrounding the diagnosis of ectopic pregnancy. In one, the alleged continuation of menstrual periods, slow onset and normal blood sedimentation led to setting aside the possibility of extra-uterine gestation. At operation under a probable diagnosis of torsion of the peduncle of an ovarian cyst, a ruptured tubal pregnancy was found. In another case with typical symptoms, suspicious swelling and a large internal hemorrhage, several physicians diagnosed double pregnancy, normal in the uterus and ruptured in the right tube. Operation disclosed a normal uterine pregnancy and a ruptured kidney.

## Revista de la Soc. Arg. de Biología, Buenos Aires

**3:** 1-178 (April) 1927. Partial Index

Rôle of the Suprarenals and Thyroid in Basal Metabolism. C. Demaria Massey.—p. 5.
Metabolism of Suprarenalectomized Rats and Rabbits. A. Artundo.—p. 20.
Struggle Against Cold in Suprarenalectomized Rats. A. Artundo.—p. 40.
Glycemia and Glycogen in Suprarenalectomized Rats. A. Artundo.—p. 47.
Changes in the Blood Serum from Snake Venom. J. J. Rossigroli.—p. 72.
Glutathione in Suprarenalectomized Rats. B. A. Houssay and P. Mazzocco.—p. 111.
Action of the Serum on Intestinal Peristalsis. C. Viale.—p. 129.
Action of Insulin on Glucose in Vitro. T. J. C. Combes.—p. 134.
Thyroid Inclusion in an Ovarian Tumor. F. R. Ruiz.—p. 139.
Aneurysm of an Aberrant Vessel. F. R. Ruiz and T. C. Mimmaar.—p. 148.

The Blood in Suprarenal Insufficiency. G. Viale and A. A. Bruno. —p. 166.
Carbohydrates in the Muscles of Suprarenalectomized Dogs. G. Viale et al.—p. 171.
Lecithinases in Suprarenal Insufficiency. G. Viale and T. Combes. —p. 175.

## Vida Nueva, Havana

**19:** 127-197 (April 15) 1927

*Extra-Uterine Pregnancy. Ramirez-Olivella.—p. 127.
*Tubal Insufflation for Sterility. E. R. de Aragón.—p. 133.
Pneumoperitoneum in Gynecology. G. E. Aróstegui and P. Sánchez Pessino.—p. 139.
Radiotherapy of Uterine Fibroma. P. L. Fariñas.—p. 145.

**Extra-Uterine Pregnancy with Full Term Living Fetus.**—The abdominal gestation reached full term in Ramirez-Olivella's case, which is the first of its kind in Cuban medical literature. The child is now 20 months old, fully developed physically and mentally and is without malformation. The mother also is well.

**Insufflation in Tubal Sterility.**—Of fifteen cases in which Aragón applied Rubin's test, in three the husband suffered from azoospermia and two could not be traced. In the other ten, the insufflation cured the sterility. Aragón has modified the technic and uses air instead of carbon dioxide and oxygen and a sphygmomanometer clock instead of a mercury manometer. The only contraindication lies in acute infectious conditions and suspected pregnancy.

## Deutsche medizinische Wochenschrift, Berlin

**53:** 1079-1120 (June 24) 1927

*Law of Puberty. A. Lipschütz.—p. 1079.
Nonpuerperal Osteomalacia. H. Bernhardt.—p. 1082.
Treatment of Chronic Gynecologic Inflammations. F. Turan.—p. 1083.
*Insulin Treatment of Sepsis in Nondiabetic Subjects. H. Picard.—p. 1086.
Anatoxin Immunization Against Diphtheria. E. Nassau.—p. 1087.
Progress or Retrogression of Immunologic Research? F. Wolter.—p. 1088.
Treatment of Infectious Arthritis. W. Parrisius.—p. 1090.
Yoghurt and Kefir. J. Kleeberg.—p. 1093.
Nonsurgical Treatment of Glaucoma. J. Igersheimer.—p. 1095.
Constitutional Neurasthenia. E. Siemerling.—p. 1097.
Segmental Reflex from Skin to Internal Organs. W. Ruhmann.—p. 1099.
Campaign Against Intoxicants. Müller.—p. 1100.
Reply. Raecke.—p. 1101.

**Law of Puberty.**—Lipschütz declares that the time of appearance of the characteristic changes in the genital tract and breasts is determined by a change in internal conditions which act on the sex glands—not by a primary change in the latter. Implantation of an immature ovary into an immature animal is followed by late appearance of estrus (in about six weeks). If such an ovary is implanted in an adult animal, the action of the ovary is apparent in two weeks. He also made the following experiment: One half of the ovary from an adult guinea-pig was implanted in a 3 months old castrated male, the other half in a two weeks old castrated male. The typical hyperplasia of the mammary gland started in the adult castrate in two weeks, in the young one in six weeks. In an immature animal, the ovary remains inactive until the conditions necessary for the ripening of its follicles are present. One of these conditions seems to be identical in both sexes and is probably due to the production of a hormone by the anterior lobe of the pituitary (Zondek). The other condition seems to be different in each sex. For instance, the ovary implanted in castrated males does not develop corpora lutea, but remains in the active stage of secreting follicles. This may account for the fact that in these castrated males the mammary gland grows larger than in females and even produces milk. It does not produce milk in castrated females. Implantation of sex glands in patients with infantilism is usually useless, since the condition which keeps the patients' own glands from functioning persists. After the intervention the patient harbors three inactive glands instead of two. Where the intervention helps (just as the ligation of the vas deferens sometimes helps), it is probable that the action is a nonspecific stimulation of the original sex glands.

**Insulin Treatment of Sepsis in Nondiabetic Subjects.**—Picard regularly observed a high blood sugar level in patients with septic processes, such as furuncles, phlegmons and abscesses. The highest glycemia observed in a nondiabetic patient was 215 mg. per hundred cubic centimeters of blood (phlegmon of the face). Daily injections of from 5 to 10 units of insulin proved beneficial. He observed several cases of recovery from furunculosis of long standing.

## Klinische Wochenschrift, Berlin

**6:** 1217-1264 (June 25) 1927

Gastric Channel and Isthmus. H. Lossen.—p. 1217.
*Energetics of Muscle Contraction. O. Meyerhof.—p. 1219.
*Disturbances of Tickling Sensation. J. Müller.—p. 1221.
Dextrose Equivalent of Insulin. R. Priesel and R. Wagner.—p. 1225.
Carbohydrate Metabolism of Tumors. C. Fahrig and L. Wacker.—p. 1227.
*Autonomus Muscle Tonus. K. Kuré et al.—p. 1229.
Spinal Cord Phenomenon in Arthritis of the Spine. C. von Rad.—p. 1230.
Measuring Tension of Roentgen-Ray Apparatus. H. Rahm and M. Haas. —p. 1233.
*Insufficiently Treated Syphilis in Children. F. Stern.—p. 1235.
*"Regression of Syphilis and Arsphenamine." H. Ruge.—p. 1237.
*Reply. J. Jadassohn.—p. 1238.
"Titration of Gastric Contents." Taterka and Dinkin.—p. 1240.
Ultraviolet Irradiation of Milk Fat. F. Rohr and O. Schultz.—p. 1240.
*Dextrose as Hormone of Insulin Secretion. E. Grafe and F. Meythaler. —p. 1240.
*Congo Red as Protein Precipitant. E. Mislowitzer.—p. 1240.
Multiple Sclerosis and Narcolepsy. E. Jacobssohn.—p. 1241.
Diphtheria of the Skin. H. Biberstein.—p. 1242.
*Change in Life Expectancy of Infants. A. Schlossmann.—p. 1248.
Survey of Medical Statistics. K. Freudenberg.—p. 1262.

**Energetics of Muscle Contraction.**—Meyerhof defends against Embden his own and Hill's theory of energy metabolism of the contraction of muscles. About 90 per cent of the heat production occurs during the contraction. Only in an overtetanized muscle is a considerable part of the heat produced afterward, and this is due to an after-contraction. He believes that another error occurred in Embden's work, when the latter measured the oxygen consumption of the muscle: When the experiment is interrupted immediately after stimulation of the muscle, the central parts of the muscle have no time to become recharged with oxygen. He calculates that the amount of oxygen consumption which thus escaped determination is sufficient to account for Embden's results.

**Disturbances of Tickling Sensation.**—The sensation of tickling was observed by Müller to be absent in Head's zones in diseases of the internal organs. Hyperalgesia is, as a rule, associated with a diminished or absent sensation of tickling.

**Autonomous Muscle Tonus.**—Kuré, Kimura and Tsuji observed a striking increase in the patellar and Achilles tendon reflexes after injection of epinephrine. The injection increased the muscle tonus even in tabes. Injection of pilocarpine was less effective. The contracture following lesion of the pyramidal tract is less pronounced after extirpation of the cervical sympathetic. The result is evident even on the other side and in the lower extremities. The influence of scopolamine on parkinsonian rigidity also speaks for a vegetative innervation of the muscles.

**Insufficiently Treated Syphilis in Children.**—Six children who had been insufficiently treated for syphilis from three and one-half years to twelve years before were reexamined by Stern. Only two of them showed any sign of syphilis.

**"Regression of Syphilis and Arsphenamine."**—Ruge attributes the regression of syphilis in the German navy to an energetic compulsory individual prophylaxis. Jadassohn critizises his figures and demonstrates on them the probability of another factor—apparently arsphenamine. The relation of the frequency of gonorrheal to that of syphilitic infections was 5:2, while it is 5:1.3 at present. He is strongly in favor of personal prophylaxis, although he admits that it may in some cases cause infection to be overlooked.

**Dextrose as Hormone of Insulin Secretion.**—Grafe and Meythaler injected slowly from 3 to 5 Gm. of dextrose into the pancreatico-duodenal artery in dogs. It did not increase the blood sugar and in some experiments it even lowered it considerably. Injection of the sugar into any vein induced the usual hyperglycemia.

**Congo Red as Protein Precipitant.**—Mislowitzer dilutes 3 cc. of blood ten times and adds 10 cc. of a 3 per cent solution of congo red. Addition of a few drops of a concentrated

solution of aluminum chloride precipitates the congo red with the proteins. The uric acid seems to stay in solution when this method is used.

**Change in Life Expectancy of Infants.**—The statistics of 1913 are compared by Schlossmann with those of 1925. While the mortality during the first year of life decreased in and around Düsseldorf from 11.36 to 9.68 per cent, the mortality in the first month of life increased from 3.82 to 4.70 per cent. In 1913 33.7 per cent of the total infant mortality occurred during the first month, the corresponding figures are now 48.5 per cent. The greatest difference to the disadvantage of the year 1925 is shown in the first two days. One of the causes may be overwork of pregnant women almost to term.

## Medizinische Klinik, Berlin

**23:** 933-970 (June 24) 1927

Hypersensitiveness and Eczema. P. Tachau.—p. 933. C'td.
*Diagnosis of Univitelline Twins. G. A. Wagner.—p. 936.
Studies in Gastric Secretion. E. Kohn and M. Gutmann.—p. 938.
Syphilis and Metasyphilis. D. Mulder.—p. 941.
Hunyadi János Water in Tablet Form. Z. Rausch and M. Sereghy.—p. 943.
Sedimentation Test. O. Eschbaum.—p. 945.
Skin and Venereal Diseases in Schools. A. Buschke and E. Langer.—p. 947.
Practical Hints. H. Kritzler-Kosch.—p. 951.
Treatment of Chronic Arthritis. E. Duschak.—p. 952.
Treatment of Uterine Hemorrhages. Koerner.—p. 953.
Arteriosclerosis Not Due to Occupational Injury. Von Schnizer.—p. 953.
Cancer and Its Treatment. O. Strauss.—p. 955.
Problem of the Physician. Buttersack.—p. 969.

**Diagnosis of Univitelline Twins.**—Wagner opposes Siemens' opinion that the decision whether twins are univitelline or bivitelline is unreliable if it is made only from examination of the secundinae. He maintains that the only reliable diagnostic method is the examination of the fetal membranes and placentas. He observed considerable differences of appearance in unquestionably univitelline twins and an almost complete resemblance in bivitelline. He agrees with Siemens' statistical postulate that about one-third of the pairs should be univitelline. Such was the case in his clinic.

## Münchener medizinische Wochenschrift, Munich

**74:** 1041-1082 (June 24) 1927

*Experiments on Postmortem Rigidity. L. Wacker.—p. 1041.
Synthetic Ephedrine. W. Fischer.—p. 1047.
Fruit in Treatment of Diabetes. M. Niermann.—p. 1048.
Raw Food. H. Malten.—p. 1051.
Position for Gastroscopy. R. Korbsch.—p. 1052.
Delivery of the Following Head. O. Wienskowitz.—p. 1053.
*Anesthesia by Cold. J. Schneider.—p. 1054.
*Tetanus After Sand Flea Bite. W. Rohardt.—p. 1054.
Latent Cholelithiasis in an Infant. O. Müller.—p. 1055.
Psychiatric Practice. G. Ilberg.—p. 1055.
Roentgen Stereoscopy. P. Stumpf.—p. 1057.
Surgery of Hernias in Children. A. Krecke.—p. 1060.
Epidemiology of Venereal Diseases. L. Voigt.—p. 1062.
Legislative Regulation of Prostitution. R. Breitschwerdt.—p. 1063.

**Experiments on Postmortem Rigidity.**—Wacker uses the term "interval of rigidity" for the time which elapses between death and the beginning of postmortem rigidity. The maximum interval in the white muscles of a rabbit was three and a half hours. It was obtained in an animal that had been bled to death in urethane anesthesia to prevent muscular action, which shortens the interval. The more lactic acid produced by the muscles immediately before death, the shorter is the interval. The interval lasts only a few minutes, if the muscles are completely exhausted. The reaction of such muscles is alkaline. The ash from a rested muscle contains a large amount of buffers (potassium phosphate). A muscle exhausted by loss of glycogen—from starvation, for instance—contains a minimum of buffers.

**Anesthesia by Cold.**—Schneider emphasizes the necessity of applying the spray of freezing fluid (methyl chloride) for half a minute or longer, unless the layer which is to be anesthetized is very thin. A sharp knife (tenotome) is another condition for good work.

**Tetanus After Sand Flea Bite.**—Rohardt observed four cases of tetanus in persons with ulcers of the foot, resulting from the bites of sand fleas.

## Wiener klinische Wochenschrift, Vienna

**40:** 805-836 (June 23) 1927

*Disturbances of Development and Internal Secretion. J. Bauer.—p. 805.
*Ultraviolet Rays in Hemeralopia and Keratomalacia. A. Fuchs.—p. 809.
*Antivirus. F. Schweinburg.—p. 811.
Treatment of Syphilis. G. Scherber.—p. 813.
*Exchange of Substances Between Blood and Tissues. J. F. de la Vega y Lombán.—p. 819.
Influence of Temperature and Gustatory Stimuli on Swallowing. M. Grünsfeld.—p. 820.
Menorrhagia in Congenital Myxedema. W. Schloss.—p. 821.
Treatment of Nontuberculous Coughing Children. F. Hamburger.—p. 822.
Treatment of Hygromas and Ganglions. D. Pupovac.—p. 822.
Diagnosis and Abortive Treatment of Syphilis. H. Planner. p. 823.
Preventive Treatment in Tuberculosis. A. Götzl. Supplement.—pp. 1-19.

**Disturbances of Development and Internal Secretion.**—It is pointed out by Bauer that it is not permissible to incriminate one or the other endocrine gland simply on the basis of a few symptoms, such as obesity, moderate goiter and change in respiratory metabolism, anomalies of the hair, etc. It is perfectly possible that a change in the endocrine glands is only one of parallel manifestations of a congenital tendency to—for instance—an abnormal deposition of fat. He illustrates this by the history of an obese woman with enlarged sella turcica. Several members of her family are also obese, but without any changes in the sella. Unless the enlargement of the pituitary in her case is a mere coincidence, it might be just another expression of a congenital anomaly. One member of a family may be tall and have hypoplastic testes, while the other members are also tall without being eunuchoids. It would not be logical to attribute the one case to hypofunction of the genital organs.

**Ultraviolet Rays in Hemeralopia and Keratomalacia.**—Fuchs obtained one favorable result with ultraviolet rays in an infant with xerophthalmia and keratomalacia. He also believes that he cured a case of hemeralopia in an adult by the rays, in spite of the fact that hemeralopia develops more frequently in the first sunny days of the spring.

**Antivirus.**—From his experiments Schweinburg concludes that the action of antivirus is not specific. A colon bacillus antivirus inhibited the growth of typhoid bacilli, but not of colon bacilli. He believes that the inhibition was due to exhaustion of the nutritive substances of the medium. In spite of this, he confirms the therapeutic effect of the preparations.

**Exchange of Substances Between Blood and Tissues.**—De la Vega y Lombán injected 2 cc. of a 1 per cent solution of uranin (the sodium salt of fluorescein) under the skin of one forearm and fifteen minutes later withdrew a sample of blood from the veins of the forearm of both sides simultaneously. The difference in the fluorescence of these samples served as indicator of the rapidity of the absorption of the dye by the tissues. The serum from the side that was injected had to be diluted considerably—from eight to thirty-two times. Only in one patient (cholecystitis) out of twenty-four was a four to one dilution sufficient. When the dye was injected fifteen minutes after subcutaneous injection of epinephrine in the arm, the disappearance of the dye from the blood stream was slow. Pituitary extract did not influence the test.

## Zeitschrift f. d. ges. experimentelle Medizin, Berlin

**58:** 1-270 (June 17) 1927

*Desiccation by Hypertonic Solution of Sugar. M. Bürger and M. Bauer.—p. 1.
Experiments in Inflammation. D. E. Alpern and L. M. Tutkewitsch.—p. 31.
Sedimentation Test. P. Wiemer.—p. 39.
Electrogastrography. H. Veit.—p. 61.
*Erythropoietic Action of Acidosis. L. Detre.—p. 76.
Denervation and Vital Staining. N. Kusnetzowsky.—p. 85.
Functioning of the Isolated Suprarenal. A. J. Kusnetzow.—p. 92.
The Individual and the Protective Respiratory Mask. E. Hörnicke and O. Burns.—p. 98.
*Respiratory Metabolism in Epilepsy. F. Frisch.—p. 118.
*Action of Substances Adsorbed on Colloids and the Reticulo-Endothelial System. N. von Jancsó, Jr.—p. 135.
*Pharmacologic Experiments on Alimentary Glycemia. R. D. Loewenberg.—p. 147.
A Syringe Electrode. C. H. Lasch.—p. 157.
Flow of Bile into the Intestine. A. P. Winogradow.—p. 160.
Action of Fluid from Isolated Breasts. M. P. Nikolaeff and W. W. Herbst.—p. 169.

Hematopoietic Organs in Physical and Mental Exertion. A. P. Goldberg and M. W. Lepskaja.—p. 181.
Sympathicotonia and Vagotonia. K. Csépai.—p. 206.
Intravenous Injection of Hypertonic Solutions and the Circulation. F. Kisch.—p. 215.
Variation of Endogenous Uric Acid Metabolism. H. Lucke.—p. 251.
Blood Changes from Deficiency of Oxygen. R. Rittmann.—p. 262.

**Desiccation by Hypertonic Solution of Sugar.**—Bürger and Bauer injected mice with highly concentrated solutions of dextrose. When the amount of sugar injected intravenously within a minute in a 50 per cent solution surpassed 14.2 mg. per gram of body weight, the animals developed convulsions after a latent period of several minutes. Doses of more than 16.2 mg. per gram were fatal. The kidneys of the injected animals were hyperemic and all the tubules were distended. The diuresis was considerable after intravenous injection. Intraperitoneal injections of concentrated sugar solutions in Tyrode's fluid were less toxic, more than 43 mg. of dextrose per gram of body weight being necessary to cause convulsions. In this form of administration diuresis ceased and the kidneys were small. The number of leukocytes in the large blood vessels decreased considerably, while the number of erythrocytes and the concentration of serum proteins increased. The capillaries of the heart, liver and brain were distended with blood.

**Erythropoietic Action of Acidosis.**—Various mineral acids in amounts corresponding to from 40 to 62 cc. of a tenth normal solution were administered daily by Detre to dogs. The number of erythrocytes increased in all these animals and remained at the higher level as long as the administration of the acid was continued.

**Respiratory Metabolism in Epilepsy.**—Repeated examinations of basal metabolism were made by Frisch in epileptic patients. It was much more variable in the same individual than is the case in healthy subjects.

**Action of Substances Adsorbed on Colloids and the Reticulo-Endothelial System.**—Von Jancsó, Jr., mixed electronegative colloids with alkaline colloids or with crystalloids which they adsorbed. A mixture of india ink with arsenous acid, for instance, or still better, a mixture of colloidal copper and silver with Janus green injected intravenously in rats destroyed a large part of the reticulo-endothelial cells. He assumes that the electronegative colloid serves as a vehicle for the adsorbed poison. The latter develops its action in the reticulo-endothelial cells, which have an affinity to its vehicle.

**Pharmacologic Experiments on Alimentary Glycemia.**—Extirpation of suprarenal glands prevents alimentary hyperglycemia, according to Loewenberg. Atropine also inhibits it.

## Zeitschrift für Immunitätsforschung, etc., Jena

**51:** 193-368 (June 15) 1927

Proteins and the Lipoid Antigens. A. Simeons.—p. 193.
*Serology of Cancer and Tuberculosis. H. Lehmann-Facius.—p. 196.
Inhibition Phenomenon in Agglutination. L. Detre.—p. 205.
Calmette's Vaccination. R. Kraus.—p. 230.
Idem. F. Gerlach.—p. 256.
*Serologic Experiments on Isolated Blood Vessels. E. Friedberger and S. Seidenberg.—p. 276.
Precipitation Tests with Diphtheria Toxin. E. Hoen et al.—p. 349.

**Serology of Cancer and Tuberculosis.**—Lehmann-Facius found that serums from patients with advanced cancer or tuberculosis did not precipitate when mixed with the corresponding antigen. This apparent anergy is not due to absence of the antibody, but to oversaturation with the antigen. The latter is bound to the globulin fraction. Encouraging results were obtained when using this fraction as an antigen in testing a serum from a recent case and vice versa.

**Serologic Experiments on Isolated Blood Vessels.**—Friedberger and Seidenberg perfused the lower extremities of rats and of guinea-pigs, or rabbits' ears, and counted the drops falling from the preparation. The serum of a species is quite toxic for that species. Extreme contraction of the blood vessels occurred during the perfusion, regardless of whether the serum was active or inactivated. Restitution of the blood vessels was, however, almost instantaneous. Serums from other species were toxic only when not inactivated. Slow blood clotting at 0 C. results in an almost nontoxic serum, rapidly clotted blood yields a highly toxic serum. The poisonous substance is not adsorbed to euglobulins. Normal serum induces marked vasoconstriction in the preparations from animals which had been sensitized to it. Prolonged perfusion of sensitized rabbit's ear with Ringer's solution did not abolish its anaphylactic reaction. However, when the edema which forms during perfusion had dripped off over night, the anaphylactic reaction did not appear, although such an ear reacted to other stimuli. They regard this as evidence of the body fluid mechanism of anaphylaxis and as refutation of the theory of sessile anaphylactic receptors.

## Zentralblatt für Chirurgie, Leipzig

**54:** 961-1024 (April 16) 1927

*Snapping Knee. M. Riedel.—p. 961.
Incarcerated Intersigmoid Hernia. M. Kostić.—p. 962.
*Treatment of Trigeminal Neuralgia. N. N. Nasaroff.—p. 964.
Treatment of Abscesses of the Spleen. H. Krekel.—p. 970.
Peculiar Form of Intestinal Occlusion. C. Strauch.—p. 971.
Posttyphoid Intussusception Cured by Resection of the Intestine. A. Burhaneddin.—p. 973.
"Severe Abdominal Hemorrhage from an Ovary." A. Herrmann.—p. 976.
Incarceration of the Small Intestine After Posterior Gastro-Enterostomy. R. Stohr.—p. 978.
*Lesion of the Bladder Simulating Ileus. K. Fabian.—p. 983.

**Snapping Knee.**—In Riedel's case in a boy, aged 17, the injury, acquired by a fall, was found at operation to consist in a tearing away of the posterior portion of the external semilunar cartilage. The cartilage, displaced mesially, was, on flexion, pressed on by the condyle of the femur, so that it formed a fold. On further flexion and again on complete extension, the condyle was forced up and over the top of this fold, and each time that it overcame the obstacle the bent cartilage, released, was shot forward or backward and caused the "snapping." The capsule was only moderately relaxed. Removal of the cartilage cured the condition.

**Treatment of Trigeminal Neuralgia by Moistening the Carotid Artery with 80 Per Cent Alcohol.**—Nasaroff reports success with this treatment in three cases. In one, alcohol injections had been without result.

**Lesion of the Bladder Simulating Ileus.**—In this case a carcinoma of the bladder, without producing local symptoms except a single hemorrhage, occluded the outlet of the right ureter and led to hydronephrosis with pyelitis, which, in turn, brought about the phenomena of ileus. The outlet of the bladder was so much narrowed that cystoscopy was impossible. The tumor felt on rectal examination was mistaken for prostatitis. On admission to the hospital, symptoms of ileus dominated the picture, but an obstruction in the intestine was not found at operation. The true nature of the condition was made clear by the sudden rapid growth of the tumor. The patient, a man, aged 36, died two months after the first appearance of symptoms (in the abdomen and renal region).

**54:** 1025-1104 (April 23) 1927

*Relation of Resistance to Age. M. Kirschner.—p. 1026.
Roentgen-Ray Diagnosis of Joint Tuberculosis. F. König.—p. 1030.
Termino-Lateral Pyelo-Ureterostomy. A. Krogius.—p. 1034.
*Operation for Ileus. A. Läwen.—p. 1037.
Surgery of the Anterior Mediastinal Cavity. R. Stich.—p. 1045.
Respecting the Parathyroids at Operations. H. Klose.—p. 1050.
Rectal Anesthesia with Tribromethyl Alcohol. O. Nordmann.—p. 1055.
Avoiding Failure with Kocher's Hernia Operation. A. Most.—p. 1058.

**Relation of Resistance to Age.**—Kirschner presents graphs showing the resistance to various diseases according to age. They demonstrate, with remarkable unanimity, that resistance rises sharply from birth and reaches its height at the time of sexual maturity, around the fifteenth year, after which it sinks steadily till death.

**Operation for Ileus.**—In experiments on normal rabbits and dogs Läwen demonstrated a marked, but temporary, fall in blood pressure during the act of milking or smoothing out the small intestine by gentle downward stroking. In animals with experimental ileus of twenty-four hours' standing, the same manipulations, practiced above the obstruction, resulted in a still greater fall in the blood pressure, which, moreover, did not return to normal; some of the animals died. In animals with experimental peritonitis without intestinal

obstruction, the same phenomenon followed the manipulations. He suggests that the cause of the fall in blood pressure may have been toxins present in the intestinal wall and expressed into the circulation by the stroking. He believes that in ileus the wall of the congested intestine contains toxins and that insults through stroking or milking should be avoided. He recommends abstaining, as far as possible, from operative emptying of the intestine. A further danger in operation for ileus is aspiration, through vomiting, of intestinal contents that have made their way into the stomach. To assure against this, he advises clamping off the jejunum on starting the operation.

## Zentralblatt für Gynäkologie, Leipzig

**51:** 1153-1224 (May 7) 1927

*Contracture and Sclerosis of the Neck of the Bladder in Women. R. Knorr.—p. 1154.
Adenomiosis of the Female Bladder. G. Frommolt.—p. 1159.
Cleft Ureter. A. Herfort.—p. 1170.
Ureteral Opening in the Uterus. N. Kudji.—p. 1182.
*Cystoscopy with Color Filters. B. Ottow.—p. 1184.
Plastic Repair of Injured Urethra. C. Stanca.—p. 1193.
Theory of Action of Methenamine on Urinary Retention. T. Brunner. —p. 1196.

**Contracture and Sclerosis of the Neck of the Bladder in Women.**—Knorr reports two cases of sclerosis and four of contracture of the neck of the bladder. The former ran a chronic course, resulting finally in repeated attacks of complete urinary retention. In both of these cases there had been a previous inflammatory condition of the neck of the bladder, due in one case to the staphylococcus, in the other to the colon bacillus. In his cases of contracture, which is a condition of muscular cramp, cystitis of the neck and trigone was, also, an etiologic factor. Slow and cautious stretching of the sphincter is the suitable treatment for most cases.

**Cystoscopy with Color Filters.**—The theory and advantages of the use of color filters in cystoscopy are discussed by Ottow. The picture gains in sharpness and the operator's eye is not so quickly tired.

**51:** 1225-1288 (May 14) 1927

Portes' Cesarean Section. G. A. Wagner.—p. 1226.
*Amidopyrine Test for Internal Hemorrhage. F. Wermbter.—p. 1233.
Treatment of Eclampsia. E. Martin.—p. 1238.
Ovulations Following Roentgen-Ray Castration. H. Sachs.—p. 1242.
Hyperplasia of the Thymus Cured by Roentgen Rays. N. Temesváry.—p. 1248.
Statics of Organs of the True Pelvis. E. Scipiades.—p. 1252.
*Vaginal Flora and the Postoperative Course. A. Mandelstamm.—p. 1271.

**Amidopyrine Test for Internal Hemorrhage.**—The amidopyrine test for the detection of hematin in the blood serum was applied by Wermbter in one hundred unselected gynecologic cases. Mandelstamm's technic was used. The results are tabulated. He found that the test failed as an indicator of fresh internal hemorrhage. Its result appears to parallel the hemoglobin content of the blood, i. e., the lower the hemoglobin, the more likely are we to obtain a positive reaction. In cases of tubal rupture, from one to two weeks elapse before hematin is demonstrable in the serum.

**Influence of the Vaginal and Cervical Flora on the Postoperative Course.**—The results of two and a half years' study lead Mandelstamm to the conclusion that the cleanliness of the vagina plays a subordinate rôle in the prognosis of the postoperative course. A positive outcome of the Ruge-Philipp virulence test, is, however, a warning to use special precautions in gynecologic operations.

## Bibliotek for Læger, Copenhagen

**119:** 457-578 (June) 1927

Surgery of the Sympathetic, in Particular Periarterial Sympathectomy. J. Ipsen.—p. 457.

## Ugeskrift for Læger, Copenhagen

**89:** 533-568 (June 23) 1927

*"Synthalin" P. Iversen and J. Munck.—p. 533.
*"Synthalin" Treatment of Diabetes Mellitus. J. E. Holst.—p. 540.
Idem. E. Rud.—p. 545.
*Gastroptosis in Men. E. Kindt.—p. 549.
Liver Diet in Pernicious Anemia. E. Møller.—p. 552.

**"Synthalin."**—Iversen's and Munck's researches on "synthalin" show that overdoses are poisonous to the organism. Together with the toxic effect, it has a characteristic effect on the carbohydrate metabolism. The poisonous effect, that may be of central origin, is usually manifested by nausea, diarrhea, weakness and headache, and in the severer cases by vomiting and edema of the face. The preparation may have a limited value in the clinic when the insulin treatment is at an end. The mild dyspepsia experienced at the beginning of the treatment by most of the patients soon disappears as the treatment is continued.

**"Synthalin" Treatment of Diabetes Mellitus.**—Holst has observed a favorable effect in five of ten patients treated with "synthalin," in the other five the treatment was without result. The individual tolerance for "synthalin" is very variable, and the effect on the blood sugar also varies in different patients. In cases in which only a slight effect on the blood sugar can be determined, the glycosuria may be high. Treatment should be individual. "Synthalin" seems to be especially effective in patients in whom the blood sugar concentration varied widely during treatment with insulin. A positive or constant effect from the treatment was not seen in grave diabetes with marked hyperglycemia, glycosuria and acidosis. In such cases the hyperglycemia and acidosis should be reduced by diet before "synthalin" is started. In transferring patients from even small doses of insulin to "synthalin," both should at first be given and insulin should be reduced little by little as experience proves that "synthalin" proves effective.

**Gastroptosis in Men.**—Slender men were found by Kindt to be especially liable to gastroptosis. The stomach is displaced downward as the abdominal muscles are relaxed. The indefinite pains, resembling those of ulcer or colitis, disappear on pressure by the hand over the symphysis. Gastroptosis may appear after a single exertion or after continued hard manual labor, especially the carrying of heavy loads.

## Upsala Läkareförenings Förhandlingar, Upsala

**32:** 299-396 (May 31) 1927

*The "Primary Complex" in Tuberculosis of Children. J. Naeslund.—p. 299. In English.
*Measures Against Arsine and Phosphine Poisoning. C. Naeslund.—p. 367.
The Suprarenal Glands in Fetal Life. E. Jonsson and N. Åderman.—p. 381.

**A Contribution to the Study of the "Primary Complex" in Tuberculosis of Children.**—Naeslund reports twenty cases and is of the opinion that nothing has yet disproved the assertion that tuberculosis begins in the form of a small pulmonary focus. In only a small number of cases was the tuberculous process limited to changes in the lungs and hilum lymph glands and to the meninges. In some cases, besides intestinal tuberculosis, miliary tubercles were found scattered over the lungs, and also in the spleen, liver and kidneys. In one case the primary process was found in the intestinal canal, in the form of tuberculous ulcers and enlarged caseous mesenteric lymph glands. In this case, the lungs presented only miliary tubercles and indications of tuberculosis could not be detected in the small bronchial lymph glands.

**Measures Against Arsine and Phosphine Poisoning.**—A number of different methods for the removal of arsine and phosphine from air or hydrogen were investigated by Naeslund and most of them were found to be ineffective. He recommends as the most suitable for both arsine and phosphine: 1. Concentrated aqueous solution of potassium permanganate for purification of small amounts of air or hydrogen. 2. Filter medium, consisting of a well moistened mixture of 2 parts by weight of powdered potassium permanganate and 3 parts by weight of clean coarse sand, for treating large quantities of air or hydrogen. 3. Filter medium for gas masks prepared by stirring 10 parts by weight of crushed potassium permanganate in 8 parts of 10 per cent silver nitrate solution. The mixture is then dried and mixed with 1 part by weight of calcium oxide. This mass may be introduced into ordinary containers which can be fastened to the proper gas mask for the purpose.